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Test Report for EAC 2005 VVSG Certification Testing Dominion Voting Systems Democracy Suite (D-Suite) Version 5.20 Voting System

EAC Project Number: DVS-DemSuite5.20

Version: 06

Date: 09/17/2026

U.S. Election Assistance Commission

VSTL

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TESTING
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SIGNATURES

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Pro V&V attests to the following: 1) all testing prescribed by the approved and published test plan or amended test plan was performed as identified or the divergence from the test plan was properly documented in this test report, 2) all identified voting system anomalies or failures were reported and resolved, and 3) this test report is accurate and complete. There are no opinions or interpretations included in this report, except as noted under 'Recommendations'.

REVISIONS

Revision	Description	Date
00	Initial Release	09/04/2024
01	Post-EAC Comments	9/18/2024
02	Post Updated Implementation and Change Notes Update	12/03/2024
03	Updated TDP Table	12/06/2024
04	Updated System ID Guide	01/02/2025
05	Updated Component List and TDP Table	01/16/2025
06	Removed incorrect ICP hardware version	09/17/2026

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1.0 INTRODUCTION

The purpose of this Test Report is to document the procedures that Pro V&V, Inc. followed to perform certification testing during a system modification campaign for the Dominion Voting Systems Democracy Suite (D-Suite) 5.20 Voting System to the requirements set forth for voting systems in the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG), Version 1.0. Certification testing of D-Suite 5.20 was performed to ensure the applicable requirements of the EAC VVSG 1.0 and the EAC Testing and Certification Program Manual, Version 3.0 were met. Additionally, all EAC Request for Interpretations (RFI) and Notices of Clarification (NOC) relevant to the system under test were incorporated in the test campaign.

Prior to submitting the voting system for testing, Dominion Voting Systems submitted an application package to the EAC for certification of the D-Suite 5.20 Voting System. The application was accepted by the EAC and the project was assigned the unique Project Number of DVS-DemSuite5.20.

The D-Suite 5.20 EAC-approved test plan, available for viewing on the EAC's website at www.eac.gov, was utilized as the guiding document during test performance. Since test plan approval, and as testing progressed, minor system modifications, such as revised system documentation, were incorporated. This test report reflects all testing completed, details the final versions of all technical documentation and system components, notes any test deviations or additions, and supersedes the approved test plan.

Unless otherwise annotated, all testing was conducted at the Pro V&V test facility located in Huntsville, AL, by personnel verified by Pro V&V to be qualified to perform the test.

1.1 Description and Overview of EAC Certified System Being Modified

The EAC Certified System that is the baseline for the submitted modification is described in the following subsections. All information presented was derived from the previous Certification Test Report, the EAC Certificate of Conformance and/or the System Overview.

The D-Suite 5.20 voting system configuration submitted for testing is a modification from the EAC certified D-Suite 5.17 voting system configuration.

1.1.1 Baseline Certified System

The baseline system for this modification is the D-Suite 5.17 Voting System. The D-Suite 5.17 Voting System is a paper-based optical scan voting system. The D-Suite 5.17 consists of the following major components: The Election Management System (EMS), the ImageCast Central (ICC), the ImageCast Precinct (ICP and ICP2), ImageCast X (ICX) VVPAT BMD, ImageCast Evolution (ICE), and the ImageCast X (ICX) BMD.

Detailed descriptions of the D-Suite 5.17 test campaign are contained in Pro V&V Report No.TR-01-01-DVS-50-01.03, available for viewing on the EAC's website at www.eac.gov.

The following paragraphs provide a brief description of the baseline system components.

Election Management System (EMS)

The D-Suite 5.17 EMS consists of various components running as either a front-end/client application or as a back-end/server application. A listing of the applications and a brief description of each is presented below.

Front-end/Client applications:

- EMS Adjudication: Represents the client component responsible for adjudication, including reporting and generation of adjudicated result files from ImageCast Central tabulators and adjudication of write-in selections from ImageCast Precinct and ImageCast Central tabulators. This client component is installed on both the server and the client machines.

- EMS Audio Studio: A client application that represents an end-user helper application used to record audio files for a given election project. As such, it is utilized during the pre-voting phase of the election cycle.

- EMS Election Data Translator: End-user application used to export election data from election project and import election data into election project.

- EMS Election Event Designer: A client application that integrates election definition functionality together with ballot styling capabilities and represents a main pre-voting phase end-user application

- ImageCast Voter Activation: An application, installed on a workstation or laptop at the polling place, which allows the poll workers to program smart cards for voters. The smart cards are used to activate voting sessions on ImageCast X.

- EMS Results Tally and Reporting: A client application that integrates election results acquisition, validation, tabulation, reporting, and publishing capabilities and represents the main post-voting phase end-user application.

Back-end/Server applications:

- EMS Adjudication Service: Represents a server side application which provides ballot information such as contests, candidates and their coordinates from EMS to the Adjudication application.

- EMS Application Server: Represents a server side application responsible for executing long running processes, such as rendering ballots, generating audio files and election files, etc.

- EMS Database Server: Represents a server side RDBMS repository of the election project database which holds all the election project data, including pre-voting and post-voting data.

- EMS Data Center Manager: A server application that represents a system level configuration application used in EMS back-end data center configuration.

- EMS File System Service: A back-end application that acts as a stand-alone service that runs on client machines, enabling access to low level operating system API for partitioning CF cards, reading raw partition on ICP CF card, etc.

- EMS NAS Server: Represents a server side file repository of the election project file-based artifacts, such as ballots, audio files, reports, log files, election files, etc.

- Smart Card Helper Service: A service that is installed on a workstation or laptop at the polling place, and provides required data format for programming smart cards for ImageCast devices, or, for jurisdiction's voting registration system in case of integration.

ImageCast Precinct (ICP)

The ImageCast Precinct Ballot Counter is a precinct-based optical scan ballot tabulator that is used in conjunction with ImageCast compatible ballot storage boxes. The system is designed to scan marked paper ballots printed on standard or secure paper stock, interpret voter marks on the paper ballot, and safely store and tabulate each vote from each paper ballot. The ImageCast Precinct also supports enhanced accessibility voting through optional accessories connected to the ImageCast unit. In combination with ImageCast X ballot marking platform, ImageCast Precinct provides capability to review and verify QR ballots produced by the ImageCast X ballot marking platform.

ImageCast Precinct (ICP2)

The ImageCast Precinct Ballot Counter is a precinct-based optical scan ballot tabulator that is used in conjunction with ImageCast compatible ballot storage boxes. The system is designed to scan marked paper ballots printed on standard or secure paper stock, interpret voter marks on the paper ballot, and safely store and tabulate each vote from each paper ballot. In combination with ImageCast X ballot marking platform, ImageCast Precinct provides capability to review and verify QR ballots produced by the ImageCast X ballot marking platform.

ImageCast Evolution (ICE)

The ImageCast Evolution system employs a precinct-level optical scan ballot counter (tabulator) in conjunction with an external ballot box. This tabulator is designed to mark and/or scan paper ballots printed on standard or secure paper stock, interpret voting marks, communicate these interpretations back to the voter (either visually through the integrated LCD display or optionally on an external LCD display, or audibly via integrated headphones), and upon the voter's acceptance, deposit the ballots into the secure ballot box. The unit also features an Audio Tactile Interface (ATI) which permits voters who cannot negotiate a paper ballot to generate a synchronously human and machine-readable ballot from elector-input vote selections. The ATI can also accept input from sip and puff and other personal assistive technologies. In this sense, the ImageCast Evolution acts as a ballot marking device. In combination with ImageCast X ballot marking platform, ImageCast Evolution provides capability to review and verify QR ballots produced by the ImageCast X ballot marking platform.

ImageCast Central (ICC) Count Scanner

The Dominion Democracy Suite ICC Ballot Counter system is a high-speed, central optical scan ballot tabulator based on Commercial off the Shelf (COTS) hardware, coupled with the custom-made ballot processing application software. It is used for high-speed scanning and counting of paper ballots. For the Canon scanners, the central scanning system hardware consists of a combination of two COTS devices used together to provide the required ballot scanning processing functionality; a scanner, which is used to provide ballot scanning and image transfers to the local ImageCast Central Workstation, and a COTS computer used for ballot image and election rules processing and results transfer to the EMS Datacenter. The ImageCast Central Workstation is COTS hardware which executes software for both image processing and election rules application.

The COTS scanners supported by D-Suite 5.17 are:

- Canon DR-G2140 Scanner
- Canon DR-G1130 Scanner
- Canon DR-M160 II Scanner
- Canon DR-M260 Scanner
- InoTec HiPro 821 Scanner

ImageCast X (ICX)

The Democracy Suite ImageCast X (ICX) consists exclusively of COTS available hardware and operating system, while the applications installed on top customize its behavior to turn it into a Ballot Marking Device (BMD) or a Ballot Marking Device and Tabulator (VVPAT BMD). ImageCast X application is the application that verifies voter's session eligibility, using the smart card and then presents the appropriate ballot to the voter. When a voter is satisfied with choices selected, ImageCast X application verifies them and produces an Electronic Mobile Ballot or stores the votes onto a memory device.

The ImageCast X is designed to perform the following functions:

- Printing a marked ballot
- Ballot review and second chance voting
- Accessible voting and ballot marking
- Tabulating printed ballots (in VVPAT BMD mode)

1.2 References

- Election Assistance Commission 2005 Voluntary Voting System Guidelines (VVSG) Version 1.0, Volume I, "Voting System Performance Guidelines", and Volume II, "National Certification Testing Guidelines"

- Election Assistance Commission Voting System Testing and Certification Program Manual, Version 3.0
- Election Assistance Commission Voting System Test Laboratory Program Manual, Version 3.0
- National Voluntary Laboratory Accreditation Program NIST Handbook 150, 2020 Edition, "NVLAP Procedures and General Requirements (NIST HB 150-2020)"
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-22, 2021 Edition, "Voting System Testing (NIST Handbook 150-22-2021)"
- United States 107th Congress Help America Vote Act (HAVA) of 2002 (Public Law 107-252), dated October 2002
- Pro V&V, Inc. Quality Assurance Manual
- Election Assistance Commission "Approval of Dominion Voting Systems Corp Testing Application Package" letter dated March 5, 2024
- EAC Requests for Interpretation (RFI) (listed on www.eac.gov)
- EAC Notices of Clarification (NOC) (listed on www.eac.gov)
- Dominion Voting Systems Technical Data Package
  (A listing of the D-Suite 5.20 documents submitted for this test campaign is listed in Section 3.1.2 of this Test Report)

1.3 Terms and Abbreviations

This subsection lists terms and abbreviations relevant to the hardware, the software, or this Test Plan.

"ADA" – Americans with Disabilities Act 1990

"BMD" – Ballot Marking Device

"CM" – Configuration Management

"COTS" – Commercial Off-The-Shelf

"DRE" – Direct Record Electronic

"EAC" – United States Election Assistance Commission

"EMS" – Election Management System

"FCA" – Functional Configuration Audit

"HAVA" – Help America Vote Act

"ICC" – ImageCast Central

"ICE" – ImageCast Evolution

"ICP" – ImageCast Precinct

"ICP2" – ImageCast Precinct 2

"ICX" – ImageCast X

"ISO" – International Organization for Standardization

"NOC" – Notice of Clarification

"PCA" – Physical Configuration Audit

"QA" – Quality Assurance

"RFI" – Request for Interpretation

"TDP" – Technical Data Package

"UPS" – Uninterruptible Power Supply

"VSTL" – Voting System Test Laboratory

"VVPAT" – Voter Verifiable Paper Audit Trail

"VVSG" – Voluntary Voting System Guidelines

2.0 CERTIFICATION TEST BACKGROUND

The Dominion Democracy Suite 5.20 system is a modification of a previously certified system (D-Suite 5.17). Pro V&V performed an evaluation of results from the previous test campaign to determine the scope of testing required for certification of the D-Suite 5.20. Based on this evaluation, Pro V&V determined that testing from the previous test campaign would establish the baseline and that the focus of this test campaign would be on the documented system updates.

2.1 Revision History

The table below details the version history of the D-Suite 5.20 System:

Table 2-1. D-Suite 5.20 System Revision History

System Version	Certification Type	Baseline System	Certification Number
D-Suite 5.0	New System	--- (Original System)---	DVS-DemSuite5.0
D-Suite 5.5	Modification	D-Suite 5.0	DVS-DemSuite5.5
D-Suite 5.5-B	Modification	D-Suite 5.5	DVS-DemSuite5.5-B
D-Suite 5.5-C	Modification	D-Suite 5.5-B	DVS-DemSuite5.5-C
D-Suite 5.5-D	Modification	D-Suite 5.5-C	DVS-DemSuite5.5-D
D-Suite 5.17	Modification	D-Suite 5.5-D	DVS-DemSuite5.17
D-Suite 5.20	Modification	D-Suite 5.17	DVS-DemSuite5.20*

*Upon grant of certification by the EAC

2.2 Scope of Testing

Testing from the previous test campaign was used to establish the baseline. The scope of testing focused on the functional updates and modifications. To evaluate the D-Suite 5.20 test requirements, the submitted modifications were evaluated against each section of the EAC 2005 VVSG to determine the applicable tests to be performed. Based on this assessment, it was determined that multiple areas within the EAC 2005 VVSG would be evaluated to encompass the required tests. A breakdown of the areas and associated tests is listed below:

- EAC 2005 VVSG Volume 1, Section 2: Functional Requirements
  - System Level Testing
    - System Integration Testing
    - Accuracy Testing
    - Volume & Stress
  - Functional Configuration Audit (FCA)
  - Physical Configuration Audit (PCA), including System Loads & Hardening
  - Technical Documentation Package (TDP) Review
- EAC 2005 VVSG Volume 1, Section 5: Software Requirements
  - Source Code Review, Compliance Build, Trusted Build, and Build Document Review
  - Technical Documentation Package (TDP) Review
  - Functional Configuration Audit (FCA) including Regression Testing
- EAC VVSG 1.0 Volume 1, Section 7: Security Requirements
  - Security Testing
  - Technical Documentation Package (TDP) Review

Note: Section 6 (Telecommunications Requirements) of the VVSG 1.0 is not applicable to D-Suite 5.20 and was therefore not included in testing. Additionally, Section 3 (Usability & Accessibility), Section 4 (Hardware Requirements), Section 8 (Quality Assurance Requirements), and Section 9 (Configuration Management Requirements) were reviewed in previous test campaigns and were not impacted by the submitted modifications.

2.2.1 Regression Testing

D-Suite 5.20 is a modified voting system configuration that includes functional upgrades and modifications to the baseline system. Modified system testing is an abbreviated testing campaign built upon a regression review of the modifications against the baseline-system and requirements. Modifications, alone and collectively, are reviewed (tested) to see if they fall under any requirement(s), or functionally impact the ability of the modified system to continue to meet requirements.

Regression reviews consist of targeted investigations to determine if further testing is necessary based on the nature and scope of the communicated modifications (whether activated or deactivated), and any other submitted information. The objective of regression testing is to establish assurance that the modifications have no adverse impact on the compliance, integrity, or performance of the system.

Regression testing for this test campaign consisted of the execution of the System Integration Testing.

2.2.2 Modification Overview

The Dominion Democracy Suite 5.20 Voting System is a modified voting system configuration that includes upgrades to the components of the D-Suite 5.17 Voting System. Section 2.2.2.1 details changes between this system and the baseline of the Democracy Suite 5.17 Voting System. The primary purpose of this modification was to add functional updates and modifications.

To verify the modifications were successfully addressed throughout the test campaign, each modification was tracked and verified to be addressed during the execution of the relevant test area. For example, source code changes were verified during the source code review. Modifications requiring functional test verification were evaluated by executing the standard Accuracy Test, the System Integration Test, or during performance of the FCA. Modifications that were not adequately evaluated during the performance of these tests were subjected to specifically designed test cases.

Additionally, Pro V&V functionally verified that any corrected issues from the baseline system were not present in the modified system and that all enhancements implemented did not adversely impact system performance.

2.2.2.1 Detailed List of Changes

The list below includes changes between the current D-Suite 5.20 system and the baseline of the Democracy Suite 5.17 Voting System, as taken from the submitted *Democracy Suite System Change Notes:*

General System Changes

- System and security updates to Democracy Suite:
  - Upgrade to Windows 11, Windows Server 2022 and SQL Server 2022
  - Updated system components to OpenSSL 3.0
  - Added support for CardLogix Smart Cards
- Added support for Rank Choice Voting
- ICX USB Whitelist is now maintained as part of a configuration file.

- Added an option to ensure short write-in entries (3 characters or less) can register when scanned.
- Added an option to add Batch ID's to Precinct Batch Cards
- Added ability to specify color for paper ballot and screen ballot headers based on Ballot Group

EMS

- Adjudication Databases now included in system back-ups
- Election Event Designer: Added ability to sort and group results by Ballot Groups in the Ballot Types Report
- Election Event Designer: Added support for New Hampshire Ballot Style
- Results Tally & Reporting: The following reports are now WCAG compliant (for accessibility):
  - Precinct Canvass
  - District Canvass
  - District Total Canvass
  - Summary Report (2 column)
- Results Tally & Reporting: Reporting Improvements:
  - Added option to filter Machine Report by Tabulator Type
  - District Total Canvass – Added voter privacy threshold
  - Added an option to include or exclude unincorporated areas in the SOVC report
  - Added ability to export and import Reporting Profiles for all reports in the Results Reporting Module
  - Prevented a blank write-in value from appearing in all contests on Canvass reports where write-ins do not exist
- Results Tally & Reporting: The Automatic Results Loading screen now has an option to allow users to set the results to 'Skip Adjudication'
- Results Tally & Reporting: All Adjudication reports are now generated in RTR
- Results Tally & Reporting: Added new Election Readiness Dashboard
- Results Tally & Reporting: Updated sort order on District Canvass and District Total Canvass reports to follow global order

Adjudication

- Updated User Interface for the Adjudication application
- User Management is now based within the application and can be specific to the election, rather than workstation/workgroup based
- Ballot processing can now be done in two different ways
  - Assign entire batch to single user(s)
  - Next available ballot goes to next available workstation
- Outstack criteria can now be defined by tabulator type or tabulator and counting group, allowing users to adjudicate central count/mail ballots for one set of criteria and ballots tabulated within polling places and vote centers using another set of criteria
- Added new Adjudication Statistics Report

ICP

- Ensure that the Total Result File contains information that the poll is closed
- Removed ability to print Zero Report after ballots have been cast

ICC

- Updated User Interface for the central scanning application
- Loading and configuration of election files has been enhanced, users are now only required to browse to the appropriate set of election files
- Batches can be spoiled through the application now
- New Status Report introduced, that allows users to view the list of batches and total ballots within batches that have been scanned on any tabulator, without viewing results

ICE

- Added support for multi-page TIFF images

ICP2

- Added support for multi-page TIFF images

ICX

- Added ability to perform a Hardware Sound Test from the Poll Administration and Technician Menus
- Updated option to print line between contests on VVPAT tape to print a dashed line instead of a full line when switched on
- Allow a voter making a straight party selection to split the ticket without having to deselect their party choice

2.2.3 System Overview

The D-Suite 5.20 Voting System is a paper-based optical scan voting system. The D-Suite 5.20 consists of the following major components:

- Election Management System (EMS)
- ImageCast Central (ICC)
- ImageCast Precinct (ICP and ICP2)
- ImageCast X (ICX) VVPAT BMD
- ImageCast Evolution (ICE)
- ImageCast X (ICX) BMD

2.2.3.1 Block Diagram

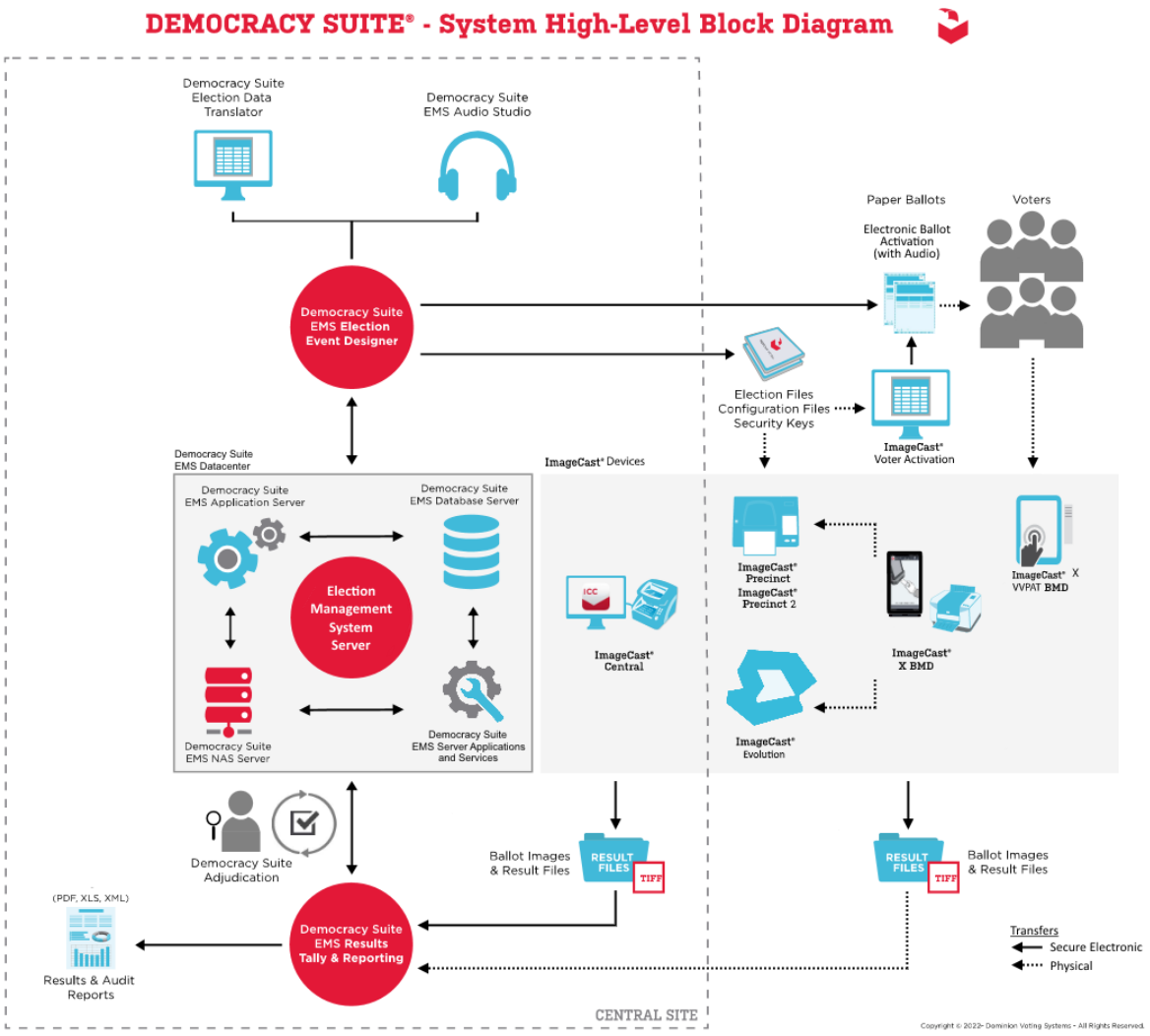


Figure 2-1. D-Suite 5.20 System Overview

2.2.4 System Limits

The system limits verified to be supported by the D-Suite 5.20 System during this test campaign or during testing of the baselined system are provided in Table 2-2.

Table 2-2. D-Suite 5.20 System Limits

Characteristic	Limit by Configuration		Limiting Component
	Express	Standard	
Ballot positions	462**/292*	462**/292*	22-inch Ballot
Precincts in an election	250	1000	Memory
Contests in an election	250	1000	Memory
Candidates/Counters in an election	2500	10000	Memory
Candidates/Counters in a precinct	462**/240*	462**/240*	22-inch Ballot
Candidates/Counters in a tabulator	2500	10000	Memory
Ballot Styles in an election	750	3000	Memory
Ballot IDs in a tabulator	200	200	Memory
Contests in a ballot style	153**/38*	153**/38*	22-inch Ballot* 14-inch QR Ballot**
Candidates in a contest	231**/240*	231**/240*	22-inch Ballot
Ballot styles in a precinct	5	5	Memory
Number of political parties	30	30	Memory
"Vote for" in a contest	30**/24*	30**/24*	22-inch Ballot
Supported languages in an election	5	5	Memory
Number of write-ins	462**/24*	462**/24*	22-inch Ballot

* Reflects the system limit for a ballot printed in landscape

** Reflects the system limit for a ballot printed in portrait.

2.2.5 Supported Languages

Support for the following languages was verified during this test campaign or during testing of the baselined system:

Table 2-3. D-Suite 5.20 Supported Languages

Language	ICE	ICP	ICP2	ICX
Alaska Native	No	Yes, if using Latin alphabet	No	No
Arabic	Yes	No	Yes	Yes
Apache	No	Audio only	No	No
Bengali	Yes	Yes	Yes	Yes
Burmese	No	No	Yes	No
Cantonese	Audio only	No	No	No
Chinese	Yes	Yes	Yes	Yes
English	Yes	Yes	Yes	Yes
Inuit	No	Yes, if using Latin alphabet	No	No

Table 2-3. D-Suite 5.20 Supported Languages *(continued)*

Language	ICE	ICP	ICP2	ICX

Filipino	Yes	Yes	Yes	No
French	No	Yes	Yes	Yes
Gujarati	Yes	No	Yes	No
Haitian Creole	Yes	No	Yes	No
Hindi	Yes	Audio only	Yes	Yes
Hmong	Yes	No	Yes	No
Ilocano	Yes	No	Yes	No
Indonesian	No	No	Yes	No
Japanese	Yes	Yes	Yes	Yes
Jicarilla	No	Audio only	No	No
Keres	No	Audio only	No	No
Khmer	Yes	Audio only	Yes	No
Korean	Yes	Yes	Yes	Yes
Laotian	Yes	No	Yes	No
Mien	No	No	Yes	No
Mongolian	No	No	Yes	No
Nepali	Yes	No	Yes	No
Navajo	No	Audio only	No	No
Mandarin	Audio only	No	No	No
Polish	Yes	No	Yes	No
Punjabi	Yes	No	Yes	No
Russian	Yes	No	Yes	No
Seminole	No	Audio only	No	No
Spanish	Yes	Yes	Yes	Yes
Tagalog	Yes	No	Yes	Yes
Tamil	Yes	No	Yes	No
Telugu	Yes	No	Yes	No
Thai	Yes	Audio only	Yes	Yes
Tolowa	No	No	Yes	No
Towa	No	Audio only	No	No
Ute	No	Audio only	No	No
Ukrainian	Yes	No	Yes	No
Urdu	Yes	No	Yes	No
Vietnamese	Yes	Yes	Yes	Yes
Yuman	No	Audio only	No	No
Yurok	No	No	Yes	No

Support for all stated languages was verified; however, only English and Spanish language ballots were cast during the performance of functional testing. Additionally, one character-based language (Chinese) was tested during System Integration Testing.

For the character-based language, the ballot was created by Pro V&V and voted utilizing both paper ballots and ADA voting devices along with all applicable peripherals. The Chinese Language for the ballot was created using a readily available online translation tool. The translated language text was entered into the Election Event Designer Application. A ballot preview was generated in the EED application. The Chinese characters displayed in the ballot preview were compared to the characters generated by the online translation tool, to ensure that the characters matched.

The ballots were then generated and printed, and the election loaded onto the tabulators and the BMD units. The Chinese characters displayed on both the printed ballots and displayed on the BMD units were compared to the original Chinese Characters generated by the online translation tool to verify that the characters matched.

2.2.6 Supported Functionality

The D-Suite 5.20 is designed to support the following voting variations:

- General Election
- Closed Primary
- Open Primary
- Early Voting
- Partisan/Non-Partisan Offices
- Write-In Voting
- Primary Presidential Delegation Nominations
- Split Precincts
- Vote for N of M
- Ballot Rotation
- Provisional or Challenged Ballots
- Straight Party Voting
- Cross-Party Endorsement
- Rank Choice Voting

2.2.7 VVSG

The D-Suite 5.20 Voting System was evaluated against the relevant requirements contained in the EAC 2005 VVSG, Version 1.0. To evaluate the D-Suite 5.20 test requirements, the submitted modifications were evaluated against each section of the EAC VVSG 1.0 to determine the applicable tests to be performed. All requirements that were excluded from the previous test campaign (D-Suite 5.17) were also deemed not applicable to this test campaign. These requirements, along with the rationale for not evaluating the system to the identified section, are identified below:

- Volume I, Section 6.2.6 (Telecommunications Requirements: Integrity)
    - *These requirements are written for use of public networks. The D-Suite 5.20 does not utilize public networks*
- Volume I, Section 7.5.2-7.5.4 (Security: Protection Against External Threats, Monitoring and Responding to External Threats, and Shared Operating Environment)

- *These requirements are written for use of public networks. The D-Suite 5.20 does not utilize public networks*

- Volume I, Section 7.6 (Use of Public Communications Networks)
  - *D-Suite 5.20 does not support transmission over public networks.*

- Volume I, Section 7.7 (Wireless Communications)
  - *No wireless technology is utilized in this system.*

Additionally, the submitted modifications did not require the evaluation of any requirements that were not included in the baseline system.

2.2.8 RFIs

There are no RFIs released by the EAC as of the date of this Test Report that pertain to this test campaign that were not in effect at the time of the baseline system certification.

2.2.9 NOCs

There are no NOCs released by the EAC as of the date of this Test Report that pertain to this test campaign that were not in effect at the time of the baseline system certification.

3.0 TEST FINDINGS AND RECOMMENDATION

The D-Suite 5.20 Voting System was evaluated against the relevant requirements contained in the EAC 2005 VVSG, Volumes I and II. The test campaign focused on the submitted updates and modifications. The summary findings and recommendations for each area of testing are provided in the following sections.

3.1 Summary Findings and Recommendation

Summary findings for the System Level Testing (System Integration Testing, Accuracy Test, Volume & Stress Testing, and FCA), Usability/Accessibility Testing, and Source Code Review are detailed in the relevant sections of this report. In addition to these areas of testing, a PCA (including System Loads & Hardening) and a TDP Review were performed, as described below.

3.1.1 Physical Configuration Audit (PCA)

The Physical Configuration Audit (PCA) compares the voting system components submitted for qualification to the manufacturer's technical documentation, and shall include the following activities:

- Establish 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

- Verify 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

- If the hardware is non-COTS, Pro V&V shall review drawings, specifications, technical data, and test data associated with system hardware to establish system hardware baseline associated with software baseline

- Review 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

Summary Findings

During execution of the PCA, the components of the D-Suite 5.20 were documented by component name, model, serial number, major component, and any other relevant information needed to identify the component. For COTS equipment, every effort was made to verify that the COTS equipment had not been modified for use.

Additionally, each technical document submitted in the TDP was recorded by document name, description, document number, revision number, and date of release. At the conclusion of the test campaign, test personnel verified that any changes made to the software, hardware, or documentation during the test process were fully and properly documented.

3.1.2 TDP Review

In order to determine compliance of the modified TDP documents with the EAC 2005 VVSG, a limited TDP review was conducted. This review focused on TDP documents that have been modified since the certification of the baseline system. The review consisted of a compliance review to determine if each regulatory, state, or manufacturer-stated requirement had been met based on the context of each requirement. Results of the review of each document were entered on the TDP Review Checklist and reported to the manufacturer for disposition of any anomalies. This process was ongoing until all anomalies were resolved. Any revised documents during the TDP review process were compared with the previous document revision to determine changes made, and the document was re-reviewed to determine whether subject requirements had been met.

Summary Findings

The submitted TDP was determined to be in compliance with the requirements set forth in the EAC 2005 VVSG. A listing of all documents contained in the D-Suite 5.20 TDP is provided in Table 3-1.

Table 3-1. D-Suite 5.20 TDP Documents

Document Number	Description	Version
Adjudication Documents		
2.05	Democracy Suite ImageCast Adjudication Software Design and Specification	5.20::1
2.08	Democracy Suite Adjudication System Operation Procedures	5.20::1
2.09	Democracy Suite Adjudication System Maintenance Manual	5.20::1
D-Suite Documents		
2.02	Democracy Suite System Overview	5.20::4
2.06	Democracy Suite System Security Specification	5.20::2
2.07	Democracy Suite System Test and Verification Specification	5.20::1
2.10	Democracy Suite Personnel Deployment and Training Requirements	5.20::1
2.11	Democracy Suite Configuration Management Plan	5.20::3
2.12	Democracy Suite Quality Assurance Program	5.20::1
2.13	Democracy Suite System Change Notes	5.20::4
EMS Documents		
2.03	Democracy Suite EMS Functional Description	5.20::1
2.05	Democracy Suite EMS Software Design and Specification	5.20::3
2.08	Democracy Suite EMS System Operations Procedures	5.20::1
2.09	Democracy Suite EMS System Maintenance Manual	5.20::1
---	Democracy Suite EMS Client Workstation Installation and Configuration Procedure	5.20::4
---	Democracy Suite EMS Express Installation and Configuration Procedure	5.20::4
---	Democracy Suite EMS Standard System Installation and Configuration Procedure	5.20::5
---	Democracy Suite ImageCast Voter Activation Installation and Configuration Procedure	5.20::3
ImageCast Central Documents		
2.03	Democracy Suite ImageCast Central System Functionality Description	5.20::1
2.05	Democracy Suite ImageCast Central Software Design and Specification	5.20::2

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
2.08	Democracy Suite ImageCast Central System Operation Procedures	5.20::1
---	Democracy Suite ImageCast Central Installation and Configuration Procedure	5.20::8
ImageCast Evolution Documents		
2.03	Democracy Suite ImageCast Evolution System Functionality Description	5.20::1
2.04	Democracy Suite ImageCast Evolution System Hardware Specifications	5.20::1
2.05	Democracy Suite ImageCast Evolution Software Design and Specifications	5.20::2
2.08	Democracy Suite ImageCast Evolution System Operation Procedures	5.20::2
2.09	Democracy Suite ImageCast Evolution System Maintenance Manual	5.20::1
ImageCast Precinct Documents		
2.03	Democracy Suite ImageCast Precinct System Functionality Description	5.20::1
2.04	Democracy Suite ImageCast Precinct System Hardware Specification	5.20::1
2.04.1	Democracy Suite ImageCast Precinct System Hardware Characteristics	5.20::1
2.05	Democracy Suite ImageCast Precinct Software Design and Specification	5.20::1
2.08	Democracy Suite ImageCast Precinct System Operation Procedures	5.20::1
2.09	Democracy Suite ImageCast Precinct System Maintenance Manual	5.20::1
ImageCast Precinct2 Documents		
2.03	Democracy Suite ImageCast Precinct 2 System Functionality Description	5.20::1
2.04	Democracy Suite ImageCast Precinct 2 System Hardware Specifications	5.20::2
2.05	Democracy Suite ImageCast Precinct 2 Software Design and Specifications	5.20::2
2.08	Democracy Suite ImageCast Precinct 2 System Operation Procedures	5.20::1
2.09	Democracy Suite ImageCast Precinct 2 System Maintenance Manual	5.20::1
ImageCast X Documents		
2.03	Democracy Suite ImageCast X System Functionality Description	5.20::1
2.05	Democracy Suite ImageCast X Software Design and Specification	5.20::2
2.08	Democracy Suite ImageCast X System Operation Procedures	5.20::1
---	Democracy Suite ImageCast X Classic System Installation and Configuration Procedure	5.20::3

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	Democracy Suite ImageCast X Prime System Installation and Configuration Procedure	5.20::3
2.09	Democracy Suite ImageCast X System Maintenance Manual	5.20::1
User Guides		
---	Democracy Suite ImageCast Adjudication User Guide	5.20::4
---	Democracy Suite EMS Election Data Translator User Guide	5.20::2
---	Democracy Suite EMS Audio Studio User Guide	5.20::1
---	Democracy Suite EMS Election Event Designer User Guide	5.20::5
---	Democracy Suite EMS Results Tally and Reporting User Guide	5.20::3
---	Democracy Suite ImageCast Central User Guide	5.20::1
---	Democracy Suite ImageCast Precinct User Guide	5.20::1
---	Democracy Suite EMS ImageCast Voter Activation User Guide	5.20::1
---	Democracy Suite ImageCast X User Guide	5.20::3
---	Democracy Suite ImageCast Evolution User Guide	5.20::1
---	Democracy Suite ImageCast Precinct 2 User Guide	5.20::3
DVS Supplemental Documents		
---	Democracy Suite ImageCast C++ Coding Standard	5.20::1
---	Democracy Suite ImageCast Tabulator Surface Cleaning Guide	5.20::1
---	Java Coding Standards	5.20::1
---	JavaScript Coding Standards	5.20::1
---	SD_Google Java Style Dominion	1.0
---	Democracy Suite ImageCast Central Machine Behavioral Settings	5.20::2
---	Democracy Suite ImageCast Device Configuration Files	5.20::1
---	Democracy Suite ImageCast Election Definition Files	5.20::1
---	Democracy Suite ImageCast Printing and Finishing Specification	5.20::1
---	Democracy Suite ImageCast Total Results File Format	5.20::1
---	Democracy Suite ImageCast Evolution Firmware Installation Procedure	5.20::2
---	Democracy Suite ImageCast Evolution Level One (L1) Maintenance Manual	5.20::1
---	Democracy Suite ImageCast Evolution Li-Ion Battery Maintenance Procedure	5.20::1
---	Democracy Suite ImageCast Evolution Machine Behavior Settings	5.20::1
---	Usability Test Report of ImageCast Evolution	5.20::1
---	Democracy Suite ImageCast Precinct Li-Ion Battery Maintenance Procedure	5.20::1

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	Democracy Suite ImageCast Precinct Extracting Firmware Contents	5.20::1
---	Democracy Suite ImageCast Precinct Firmware Update Procedure	5.20::1
---	Democracy Suite ImageCast Precinct Level One (L1) Maintenance Manual	5.20::1
---	Democracy Suite ImageCast Precinct Technical Guide	5.20::1
---	Usability Test Report of ImageCast Precinct 5.0 With 36 Participants for VVSG	5.20::1
---	Democracy Suite ImageCast Precinct 2 Extracting Firmware Contents and Verifying SHA256 Values	5.20::1
---	Democracy Suite ImageCast Precinct 2 Level One (L1) Maintenance Manual	5.20::1
---	Democracy Suite ImageCast Precinct 2 Machine Behavior Settings	5.20::1
---	Democracy Suite ImageCast X Machine Configuration File Settings	5.20::3
---	Usability Test Report of ImageCast X 5.0 With 36 Participants for VVSG 1.0	5.20::1
---	Common Industry Format for Usability Test Report ImageCast X 5.2 with VVPAT	5.20::1
---	Democracy Suite System Identification Guide	5.20::12
---	SD_HashValues_Detailed_5.20	---
COTS Supplemental		
---	Ablenet Single Switch Quickstart Guide	B
---	Cyber Acoustics ACM-70B Stereo Headphones	---
---	ACS AC0s6 Multi-Application and Purse Card Functional Specifications	V1.04
---	ACS AC0S6 SAM Reference Manual	V2.90
---	ACS ACR38x CCID Smart Card Reader Reference Manual	V6.05
---	ACS ACR39 Series PC-linked Smart Card Readers Reference Manual	V1.04
---	AOC USB Monitor User Manual e1649fwu	---
---	Apacer RoHS Recast Compliant Industrial SDHC/XC 6.1 CH120-SD Production Specifications for DVS	0.2
---	APC Installation and Operation Rack Power Distribution Unit AP9562	990-1215D-001
---	APC User Manual Back-UPS BE600M1	EN 990-5679
---	APC Smart-UPS Installation Guide SMT1500	EN 990-3535F-001

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	APC Operation Manual Smart-UPS Uninterruptible Power Supply	EN 990-3534F
---	APC Operation Manual Smart-UPS Uninterruptible Power Supply	EN 990-5442D
---	Apricorn Aegis Secure Key 3z User's Manual	V04-19
---	Apricorn Aegis Secure Key 3NX Compliance	V11-03-20
---	Avalue HID-21V-BTX-B1R User Manual	1.3
---	Avalue HID-21V-BTX-A1R User Manual	3.0
---	Avalue SID-15V Quick Reference Guide	1st Ed
---	Avalue SID-15V-Z37-A1R User Manual	1.0
---	Avalue SID-21V Fact Sheet	---
---	Avalue SID-21V-Z37-A1R User Manual	1.0
---	Avalue SID-21V Quick Reference Guide	1st Ed
---	Avision AP30 Series Printer Spec Sheet	---
---	Avision AP30 Series Printer User's Guide	---
---	Avision AP3061 CE Test Report	V1.0
---	Avision AP3061 FCC Test Report	V3.0
---	Avison AP3061 Statement of Conformity	---
---	Canon DR-G1130 User Manual	CE-IM-910-E1.00
---	Canon DR-G2140 DR-G2110 DR-2090 User Manual	6T3-0034-E1.10
---	Canon DR-M160II User Manual	CE-IM-0953-E1.00
---	Canon DR-M260 User Manual	CE-IM-0991-E1.00
---	Canon imageCLASS LBP6230dw Spec Sheet	---
---	Canon imageCLASS LBP6230dw Startup	---
---	CardLogix C7 Specification	PN 7400033
---	Cisco Business 350 Series Managed Switches Data Sheet	C78-744156-01
---	Cisco Business 350 Series Managed Switches Quick Start Guide	---
---	CyberPower RoHS Declaration of Compliance	2019/11/01
---	CyberPower Smart App Sinewave Series PR1500LCD User's Manual	---
---	SD and CF Reader Datasheet	---
---	Dell Latitude 3340 2-in-1 Product Compliance Datasheet	Rev. A25
---	Dell Latitude 3340/Latitude 3340 2-in-1 Service Manual	Rev. A00
---	Dell Latitude 3340/Latitude 3340 2-in-1 Setup and Specifications	Rev. A00

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	Dell Latitude 3400 Setup and specifications guide	Rev. A00
---	Dell Latitude 3410 Product Compliance Datasheet	Rev. A18
---	Dell Latitude 3410 Setup and specifications guide	Rev. A01
---	Dell Latitude 3420 Setup and Specifications	Rev. A03
---	Dell Latitude 3470 Owner's Manual	Rev. A00
---	Dell Latitude 3480 Owner's Manual	Rev. A00
---	Dell Latitude 3490 Owner's Manual	Rev. A01
---	Dell Latitude E7450 Owner's Manual	Rev. A02
---	Dell Latitude E7470 Owner's Manual	Rev. A02
---	Dell Networking X-Series Datasheet	1.9
---	Dell Networking X1000 and X4000 Series Switches User Guide	Rev. A06
---	Dell OptiPlex 3050 All-in-One Owner's Manual	Rev. A00
---	Dell OptiPlex 5270 All-in-One Setup and specifications guide	Rev. A00
---	Dell OptiPlex 7050 Tower Owner's Manual	Rev. A01
---	Dell OptiPlex 7060 Small form Factor Setup and specifications guide	Rev. A01
---	Dell OptiPlex 7070 Tower Setup and Specifications	Rev. A00
---	Dell OptiPlex 7440 All-In-One Owner's Manual	Rev. A01
---	Dell OptiPlex 9010/7010 Desktop Owner's Manual	Rev. A02
---	Dell OptiPlex 9020 Small Form Factor Owner's Manual	Rev. A01
---	Dell OptiPlex 9030 All-In-One Owner's Manual	Rev. A01
---	Dell OptiPlex XE3 SFF Product Compliance Datasheet	Rev. A12
---	Dell OptiPlex XE3 Small Form Factor Setup and Specifications	Rev. A01
---	Dell OptiPlex XE3 Small Form Factor Service Manual	Rev. A01
---	Dell OptiPlex XE4 SFF Product Compliance Datasheet	Rev. A23
---	Dell OptiPlex XE4 Small Form Factor Service Manual	Rev. X-Rev
---	Dell OptiPlex XE4 Small Form Factor Setup and Specifications	Rev. A01
---	Dell P2417H Monitor User's Guide	Rev. A01
---	Dell P2418HT Worldwide Regulatory Compliance Engineering and Environmental Affairs	A11
---	Dell P2418HT User's Guide	Rev. A00
---	Dell P2419H Monitor User's Guide	Rev. A00
---	Dell P2422H Monitor User's Guide	Rev. A02
---	Dell P2422H Product Compliance Datasheet	Rev. A20
---	Dell PowerConnect 2808 Worldwide Regulatory Compliance Engineering and Environmental Affairs	---
---	Dell PowerConnect 2816 Worldwide Regulatory Compliance Engineering and Environmental Affairs	---

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	Dell PowerEdge R630 Worldwide Regulatory Compliance Engineering and Environmental Affairs	A10
---	Dell PowerEdge R630 Owner's Manual	Rev. A03
---	Dell EMC PowerEdge R640 Installation and Service Manual	Rev. A01
---	Dell EMC PowerEdge R640 Technical Guide	Rev. A00
---	Dell PowerEdge R660 Product Compliance Datasheet	Rev. A26
---	Dell PowerEdge R660 Installation and Service Manual	Rev. A00
---	Dell Precision 3430 Small form Factor Service Manual	Rev. A00
---	Dell Precision 3431 Small Form Factor Setup and specifications guide	Rev. A00
---	Dell Precision 3440 SFF Product Compliance Datasheet	Rev. A17
---	Dell Precision 3440 Small Form Factor Setup and specifications guide	Rev. A00
---	Dell Precision 3450 Small Form Factor Service Manual	Rev. A02
---	Dell Precision 3450 Small Form Factor Setup and Specifications	Rev. A02
---	Dell Precision 3460 SFF Product Compliance Datasheet	Rev. A23
---	Dell Precision 3460 Small Form Factor Service Manual	Rev. A00
---	Dell Precision 3460 Small Form Factor Setup and Specifications	Rev. A01
---	Dell Precision T1700 Mini-Tower Owner's Manual	Rev. A00
---	Dell Precision Tower 3420 Owner's Manual	Rev. A00
---	Dell Touch USB-C Hub Monitor P2424HT User’s Guide	Rev. A01
---	DisplayLink DL-1x5 Series High Performance USB Virtual Graphics	---
---	Programming Research High-Integrity C++ Coding Standard Manual	2.2
---	HIC++ Standards Model for C++	9.5.4
---	HID Omnikey 3121 Assembly Procedure	Rev. A.0
---	HID Omnikey 3121 User Guide	Rev. A.3
---	HID Omnikey 3121 Datasheet	---
---	HP LaserJet Pro 4001, 4002 User Guide	1.0
---	HP LaserJet Pro 4001 series Setup Guide	---
---	HP LaserJet Pro M402dn Datasheet	Rev. 2
---	HP LaserJet Pro M402dne Datasheet	---
---	HP LaserJet Pro M402, M403 User Guide	2
---	HP Laser Jet Pro M304-M305, M404-M405 User Guide	2
---	HP LaserJet Pro M404 series Datasheet	1
---	HP LaserJet Pro M501 User Guide	3
---	Voter-verified paper audit trail (VVPAT) Model: VRP3 User Manual	07/2018

Table 3-1. D-Suite 5.20 TDP Documents *(continued)*

Document Number	Description	Version
---	IOGEAR GFR381 USB 3.0 Compact Flash Memory Card Reader	---
---	Kingston USB 3.0 High-Speed Media Reader Datasheet	---
---	Lenovo ThinkCentre TIO24Gen3Touch User Guide	First Edition
---	Lenovo ThinkCentre TIO24Gen4Touch User Guide	First Edition
---	Lexar Professional USB 3.0 Dual-Slot Reader Quick Start Guide	A
---	Planar PCT2235 Touch LED LCD Monitor User's Guide	---
---	SCAMAX 8x1 Ultra High Performance Scanner	A
---	SCAMAX Document Scanner Type: H12 User Manual	2019.12
---	Tripp-Lite SmartPro SM1500RMXL2UTAA Datasheet	---
---	Tripp-Lite Smart1500 Owner's Manual	---
Build Documents		
---	Democracy Suite ImageCast Evolution Firmware Build, Prerequisite Setup and Installation	5.20::3
---	Democracy Suite ImageCast Precinct Firmware Build and Install	5.20::2
---	Democracy Suite ImageCast X Build	5.20::4
---	Democracy Suite Windows Build Document	5.20::12
---	Democracy Suite ImageCast Precinct 2 Build Environment and Prerequisite Setup, Firmware Build and Installation	5.20::2
---	Democracy Suite ImageCast Central Build Procedure	5.20::3
---	Android Build Procedure	5.20::5

3.1.3 Source Code Review, Compliance Build, Trusted build, and Build Documentation Review

Pro V&V reviewed the submitted source code to the EAC 2005 VVSG and the manufacturer-submitted coding standards. Prior to initiating the software review, Pro V&V verified that the submitted documentation was sufficient to enable: (1) a review of the source code and (2) Pro V&V to design and conduct tests at every level of the software structure to verify that design specifications and performance guidelines are met.

For the ICE software, a combination of Automated Source Code Review and Manual Source Code Review methods was used to review the source code. For all other components, the submitted source code was compared to the previously certified Democracy Suite 5.17 voting system versions to determine the changes, if any. A combination of Automated Source Code Review and Manual Source Code Review methods was used to review the changes in the source code. In addition, 10% of the source code comments from the new source code were manually reviewed.

Summary Findings

- Automated Source Code Review: The Automated Source Code Review was performed to review the changes in the source code from the previously certified voting system. No source code issues were found during the Automated Source Code review.

- Manual Source Code Review: The Manual Source Code review was performed on 10% of the comments from the new source code for compliance to VVSG Volume Section 5.2.7. No source code issues were found during the Manual Source Code review.

- Compliance Build: The compliance build was performed following the compliance review. Once the compliance review was performed and the source was deemed stable enough to proceed with testing, the source code and all additional packages were compiled into a Compliance Build.

- Trusted Build: The trusted build consisted of inspecting customer submitted source code, COTS, and Third-Party software products and combining them to create the executable code. This inspection followed the documented process from the "United States Election Assistance Commission Voting System Testing and Certification Program Manual" Section 5.5 – 5.7. Performance of the trusted build includes the build documentation review. The Trusted Build was performed following the completion of the Functional Configuration Audit.

3.1.4 System Level Testing

System Level testing was implemented to evaluate the complete system. This testing included all proprietary components and COTS components (software, hardware, and peripherals) in a configuration of the system's intended use. For software system tests, the tests were designed according to the stated design objective without consideration of its functional specification. The system level hardware and software test cases were prepared independently to assess the response of the hardware and software to a range of conditions. Pro V&V reviewed the manufacturer's program analysis, documentation, and module test case design and evaluated the test cases for each module with respect to flow control parameters and entry/exit data.

System Level Testing for this campaign included the evaluations of the following test areas: FCA, Accuracy Testing, System Integration Testing, and Volume & Stress. Each of these areas is reported in detail in the subsections that follow.

Pro V&V defined the expected result for each test and the ACCEPT/REJECT criteria for certification. If the system performed as expected, the results were accepted. If the system did not perform as expected, an analysis was performed to determine the cause. If needed, the test was repeated in an attempt to reproduce the results. If the failure could be reproduced and the expected results were not met, the system was determined to have failed the test. If the results could not be reproduced, the test continued. Any errors encountered were documented and tracked through resolution.

3.1.4.1 Functional Configuration Audit (FCA)

The Functional Configuration Audit (FCA) encompasses an examination of manufacturer's tests, and the conduct of additional tests, to verify that the system hardware and software perform all the functions described in the manufacturer's documentation submitted in the TDP. In addition to functioning according to the manufacturer's documentation tests were conducted to ensure all applicable EAC 2005 VVSG requirements are met.

The FCA for this test campaign included an assessment of the submitted modifications and included inputs of both normal and abnormal data during test performance. This evaluation utilized baseline test cases as well as specifically designed test cases and included predefined election definitions for the input data:

- FCA-VVSG Testing: Each component of the system was evaluated against a standardized test-case suite centered upon requirements stated in the VVSG and administered through a test-management software tool. All applicable tests-cases were performed while any non-applicable test-cases were logged as "---" for substantiation. The system operations and functional capabilities were categorized in the tool as follows by the phase of election activity in which they are required:
    - Pre-voting Capabilities: These functional capabilities are used to prepare the voting system for voting. They include ballot preparation, the preparation of election-specific software (including firmware), the production of ballots, the installation of ballots and ballot counting software (including firmware), and system and equipment tests.
    - Voting System Capabilities: These functional capabilities include all operations conducted at the polling place by voters and officials including the generation of status messages.
    - Post-voting Capabilities: These functional capabilities apply after all votes have been cast. They include closing the polling place; obtaining reports by voting machine, polling place, and precinct; tabulation of paper ballots at the central location; accumulation of results from all voting methods; obtaining consolidated reports; and obtaining reports of audit trails.
- FCA-Claims Testing: System user instructions and procedures found in the TDP were followed to verify their accuracy and completeness. In addition, any functional claims discovered in the TDP that were not specifically examined in other areas or that were items of interest were also tested.
- FCA-Mapping: Any modified functional paths (buttons, dropdowns, etc.) were mapped by qualified VSTL personnel, to help ensure all functional options had been noted and exercised. Any items of interest were examined and/or tested.

All issues (if any) found during these efforts are detailed in Section 3.3. Any issues noted were tracked using an issue tracking software program and issue tracking spreadsheets.

Summary Findings

All functional tests were successfully executed. During execution of the test procedure, it was verified that the D-Suite 5.20 System successfully completed the system level integration tests with all actual results obtained during test execution matching the expected results.

3.1.4.2 Accuracy

The accuracy test ensures that each component of the voting system can each process at least 1,549,703 consecutive ballot positions correctly within the allowable target error rate. The Accuracy test is designed to test the ability of the system to "capture, record, store, consolidate and report" specific selections and absences of a selection. The required accuracy is defined as an error rate. This rate is the maximum number of errors allowed while processing a specified volume of data. For paper-based voting systems the ballot positions on a paper ballot must be scanned to detect selections for individual candidates and contests and the conversion of those selections detected on the paper ballot converted into digital data.

For paper-based voting systems the ballot positions on a paper ballot must be scanned to detect selections for individual candidates and contests and the conversion of those selections detected on the paper ballot converted into digital data.

Summary Findings

The accuracy requirements for the ICC, ICP, ICP2, and ICE units were met by the execution of the standard accuracy test utilizing hand-marked and pre-marked ballots of each ballot length supported by the system, and ballots produced by the ICX BMD. The accuracy requirements for the ICX VVPAT BMD were met by using the built-in vote simulation tool to cast votes on the device.

3.1.4.3 System Integration

System Integration is a system level test for the integrated operation of both hardware and software. System Integration evaluates the compatibility of the voting system software components or subsystems with one another, and with other components of the voting system environment. This compatibility was determined through functional tests integrating the voting system software with the remainder of the system. During test performance, the system was configured exactly as it would for normal field use. This included connecting all supporting equipment and peripherals including ballot boxes, voting booths (regular and accessible), and any physical security equipment such as locks and ties.

During System Integration testing, three General Elections and two Primary Elections were successfully exercised on the voting system, as described below:

Three general elections with the following breakdowns:

- General Election GEN-01: A General Election with Straight Party held in three precincts, one of which is a split precinct. This election contains nineteen contests compiled into four ballot styles. Five of the contests are in all four ballot styles. The other fourteen contests

are split between at least two of the precincts with a maximum of four different contest spread across the three precincts.

- General Election GEN-02: A General Election held in three precincts. This election has fifteen contests compiled into three ballot styles. Ten of the contests are in all three ballot styles with the other five split across the three precincts. This election also tests the ranked choice voting functionality. *Note: GEN-02 was performed during the test campaign to evaluate the Rank Choice Voting option. This election was not included in the published test plan.*

- General Election GEN-03: A General Election held in two precincts. This election contains eight contests and compiled into two ballot styles. Four of the contests are in both ballot styles. The other four contests are split between the two precincts. This election is designed to functionally test the handling of multiple ballot styles, support for at least three languages including a character-based language, support for common voting variations, and audio support for at least three languages and an ADA binary input device.

Two primary elections with the following breakdowns:

- Primary Election PRIM-01: This election is designed to functionally test a Closed Primary Election with multiple ballots and support for common voting variations. This election contains thirty-one contests and six parties compiled into eighteen ballot styles, each ballot containing six contests.

- Primary Election PRIM-02: This election is designed to functionally test an Open Primary Election held in two precincts. This election contains thirteen contests and is compiled into three ballot styles. One of the contests are in all three ballot styles. The other twelve contests are split between the three parties' ballots.

Summary Findings

The D-Suite 5.20 System successfully passed the System Integration Test. During execution of the test procedure, it was verified that the D-Suite 5.20 System successfully completed the system level integration tests with all actual results obtained during test execution matching the expected results.

3.1.4.4 Volume & Stress

The Volume & Stress test investigates the system's response to conditions that tend to overload the system's capacity to process, store, and report data. The test parameters focused on the system's stated limits and the ballot logic for areas such as the maximum number of active voting positions, maximum number of ballot styles, maximum candidates, maximum contests, and stated limits within the EMS. This test was utilized to ensure the system can achieve the manufacturer's TDP claims of what the system can support. Testing was performed by exercising multiple election definitions developed specifically to test for volume and stress conditions of the system being tested.

Summary Findings

The D-Suite 5.20 System successfully passed the Volume & Stress Test. During execution of the test procedure, it was verified that the D-Suite 5.20 System successfully completed the tests with all actual results obtained during test execution matching the expected results.

3.1.5 Security Functions

The objective of the Security Testing is to evaluate the effectiveness of the voting system in detecting, preventing, recording, reporting, and recovering from security threats. To evaluate the integrity of the system, Pro V&V developed specifically designed test cases in an attempt to defeat the access controls and security measures documented in the system TDP.

The test methods for performing the Security Testing were execution and review. Prior to performance of Security testing, the examiner verified that security hardening scripts had been properly applied to system components per the system documentation. The examiner also reviewed the submitted TDP to verify that documented access and physical controls were in place.

Following the documented procedures, the examiner configured the voting system for use and functionality to verify that the documented controls were in place, adequate and met the stated requirements.

Summary Findings

The submitted threat matrix identifying the system's risks and vulnerabilities was evaluated for completeness and to determine that mitigating controls were adequately implemented. An evaluation of the system was accomplished by utilizing a combination of functional testing and source code review. All findings were reported to the EAC and Dominion. Pro V&V determined there were no modifications made to the Physical and Administrative Security in the D-Suite 5.20 system. Pro V&V did not specifically test these areas, however Physical and Administrative Security testing was performed throughout the test campaign.

Additional reviews were performed on the implementation of Windows 11 and Windows Server 2022. Pro V&V performed a SCAP Compliance Checker to ensure the security of the new operating systems. Pro V&V also reviewed and compared these results to the results submitted by DVS. Both Windows 11 and Windows Server 2022 completed the SCAP Compliance Checker with a Compliance Status of "Green" (Score is greater than or equal to 90).

3.2 Anomalies and Resolutions

When a result is encountered during test performance that deviates from what is standard or expected, a root cause analysis is performed. Pro V&V considers it an anomaly if no root cause can be determined. In instances in which a root cause is established, the results are then considered deficiencies.

Summary Findings

There were no anomalies encountered during this test campaign.

3.3 Deficiencies and Resolutions

Any violation of the specified requirement or a result encountered during test performance that deviates from what is standard or expected in which a root cause is established was considered to be a deficiency. Any deficiencies encountered were logged throughout the test campaign into the Pro V&V tracking system (Mantis) for disposition and resolution. In each instance, if applicable, the resolutions were verified to be resolved through all required means of testing (regression testing, source code review, and TDP update) as needed.

There were no deficiencies noted during this test campaign.

4.0 RECOMMENDATION FOR CERTIFICATION

The D-Suite 5.20 Voting System, as presented for testing, successfully met the requirements set forth for voting systems in the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG), Version 1.0. Additionally, Pro V&V, Inc. has determined that the D-Suite 5.20 functioned as a complete system during System Integration Testing.

Based on the test findings, Pro V&V recommends the EAC grant the D-Suite 5.20 System, as identified below, certification to the EAC 2005 VVSG.

Election Administration

Democracy Suite Election Management System (EMS)

- ❖ Dominion Voting Systems Democracy Suite EMS 5.20.2.6, containing:
  - Election Event Designer
  - Results Tally and Reporting
  - Audio Studio
  - Election Data Translator
  - Application Server
  - Database Server
  - EMS Logger
  - NAS Server
  - EMS Server Applications & Services
    - Data Center Manager
    - File System Service
    - Smart Card Helper Service
- ❖ DCF version (ICP) DCF_5.20.1.1_20231010
- ❖ MBS version (ICC) ICC_5.20.1.1_EAC_5.20_20231030
- ❖ MBS version (ICE) ICE_5.20.1.1_EAC_5.20_20231016

- ❖ MBS version (ICP2) ICP2_5.20.1.1_EAC_5.20_20231016
- ❖ MCF version (ICX) MCF_5.20.2.5_20240227
- ❖ Optional Adjudication 5.20.2.4

COTS Hardware and Software

- EMS Standard Server Configuration
  - Microsoft Windows Server 2022
  - Microsoft SQL Server 2022 Standard
  - Server computer system per *2.02 Democracy Suite System Configuration Overview*
    - Dell PowerEdge R660
    - Dell PowerEdge R640
    - Dell PowerEdge R630
- EMS Express Server Configuration
  - Microsoft Windows 11 Professional
  - Microsoft SQL Server 2022 Standard
  - Desktop computer system per *2.02 Democracy Suite System Configuration Overview*
    - Dell Precision 3460 XE
    - Dell Precision 3450 XE
    - Dell Precision 3440 XE
    - Dell Precision 3431
    - Dell Precision 3430
    - Dell Precision T3420
    - Dell Precision T1700
- Client Workstation Configuration
  - Microsoft Windows 11 Professional
  - Desktop computer system per *2.02 Democracy Suite System Configuration Overview*
    - Dell Precision 3460 XE
    - Dell Precision 3450 XE
    - Dell Precision 3440 XE
    - Dell Precision 3431
    - Dell Precision 3430
    - Dell Precision T3420

        - Dell Precision T1700
- EMS COTS Software common to Standard and Express configurations
    - Microsoft.Net Framework 4.8
    - Microsoft.Net Framework 3.5
    - Microsoft Visual C++ 2015 Redistributable
    - Microsoft Visual C++ 2013 Redistributable
    - Dallas 1-Wire Device Driver version 4.0.5 or newer
    - Adobe Reader DC or later
- Optional COTS Software for Standard and Express configurations
    - Microsoft Windows Defender (Servers and Client Workstations)
    - Cepstral Voices (English, Spanish, etc.) 6.2.3
    - Microsoft Excel 2010 or later
    - Additional Fonts (Arial narrow fonts, 2.37a)
    - UPS drivers
    - Printer drivers
- Auxiliary Equipment:
    - iButton to 1-Wire USB Adapter: Dallas Maxim DS1402-RP8+
    - iButton Reader/Writer: Dallas Maxim DS9490R#
    - Compact Flash Reader: Lexar Professional USB 3.0 Dual-Slot Card Reader
    - Compact Flash Reader: Kingston USB 3.0 High-Speed Media Reader
    - Compact Flash Reader: Hoodman Steel USB3
    - Compact Flash / SD Reader: Delkin Devices DDREADER-44
    - Compact Flash / SD Reader: IOGEAR GFR381
    - Smart Card Reader: Advanced Card Systems ACR38U
    - Smart Card Reader: Advanced Card Systems ACR39U
    - Smart Card Reader: HID Global Omnikey 3121 FIPS-201
    - LCD Monitor:
        - Dell P2422H
        - Dell P2419H
        - Dell P2417H

- Ethernet Switch: Dell x1026
- Ethernet Switch: Dell x1008
- Ethernet Switch: Cisco 8-port Switch (CBS350-8T-E-2G)
- Ethernet Switch: Cisco 24-port Switch (CBS350-24T-4G)
- Mini-Server Rack: StarTech RK1236BKF
- Rack Power Distribution Unit: APC AP9562
- UPS:
  - Tripp Lite SMART1500RMXL2U
  - APC SMT1500 Smart-UPS
  - APC SMT1500C Smart-UPS
  - CyberPower PR1500LCD
  - CyberPower PR1500LCD-VTVM
- Keyboard, Mouse, Headset with microphone, Audio Adapter networking switch – COTS computing accessories
- EMS Report Printer: HP M404dn laser or equivalent

- Election media:
  - iButton (Pollworker): Dallas Maxim DS1963S-F5+ (w/Black Key Ring Mount DS9093A+)
  - Compact Flash Memory Cards (16GB): Centon C4-CM-CF-16.4
  - USB Memory Device (128GB): Apricorn AEGIS Secure Key 3NX PN: ASK3-NX-128GB
  - USB Memory Device (32GB): Apricorn AEGIS Secure Key 3NX PN: ASK3-NX-32GB
  - USB Memory Device (16GB): Centon (BiCS4) PN: C4-CT-U3P2-16.3
  - USB Memory Device (16GB): Centon S4-CM-U3P2-16.1
  - USB Memory Device (16GB): Apacer EH353-M APHA016GAG0CG-3TM
  - USB Memory Device (8GB): Centon (BiCS4) PN: C4-CT-U3P2-8.3
  - USB Memory Device (8GB): Centon S4-CM-U3P2-8.1
  - USB Memory Device (8GB): Apacer EH353-M APHA008GAG0CG-3TM
  - USB Memory Device (4GB): Verbatim 97087
  - Smart Cards: ACS ACOS-6-64 v3090 and ACOS-6-64 v3100
  - Smart Cards: CardLogix C7

ImageCast Voter Activation (ICVA)

❖ Software version: 5.20.2.6

COTS Hardware and Software

- Client Workstation Configuration
  - Microsoft Windows 11 Professional
  - Desktop computer system per *2.02 Democracy Suite System Configuration Overview*
    - Dell Latitude 3340
    - Dell Latitude 3420
    - Dell Latitude 3410 (SSD)
    - Dell Latitude 3410 (HDD)
    - Dell Latitude 3400
    - Dell Latitude 3490
    - Dell Latitude e3480
    - Dell Latitude e3470
    - Dell Latitude e7450
- Auxiliary Equipment:
  - Smart Card Reader: Advanced Card Systems ACR38U
  - Smart Card Reader: Advanced Card Systems ACR39U
  - Smart Card Reader: HID Global Omnikey 3121 FIPS-201
- Election Media:
  - USB Memory Device (16GB): Centon (BiCS4) PN: C4-CT-U3P2-16.3
  - USB Memory Device (16GB): Centon S4-CM-U3P2-16.1
  - USB Memory Device (16GB): Apacer EH353-M APHA016GAG0CG-3TM
  - USB Memory Device (8GB): Centon (BiCS4) PN: C4-CT-U3P2-8.3
  - USB Memory Device (8GB): Centon S4-CM-U3P2-8.1
  - USB Memory Device (8GB): Apacer EH353-M APHA008GAG0CG-3TM
  - USB Memory Device (4GB): Verbatim 97087
  - Smart Cards: ACS ACOS-6-64 v3090 and ACOS-6-64 v3100
  - Smart Cards: CardLogix C7

Central Count

ImageCast Central Count (ICC)

❖ ICC software application: version 5.20.2.6

COTS Software

- ICC COTS computer operating system: Windows 11 Professional
- Microsoft Windows Defender
- Microsoft Visual C++ 2015 Redistributable
- Dallas Maxim: 1-wire driver - version 4.0.3 or newer, 64 bit (32 bit as needed)
- Canon: DR-G2140 driver - version 1.2.7601
- Canon: DR-G1130 driver - version 1.3.6458
- Canon: DR-M160-II driver - version 1.3.6556
- Canon: DR-M260 driver - version 1.2.7500
- InoTec: HiPro 821 driver - version 2.0.2.0

COTS Hardware:

- ICC Scanner: Canon DR-G2140
  - Imprinter (optional)
- ICC Scanner: Canon DR-G1130
  - Imprinter (optional)
- ICC Scanner: Canon DR-M160-II
- ICC Scanner: Canon DR-M260
- ICC Scanner: InoTec HiPro 821 with integrated imprinter
- Canon Scanner Client Workstation Configuration:
  - Desktop or All-in-One computer system per *2.02 Democracy Suite System Configuration Overview*
    - Dell Precision 3460 XE
    - Dell Precision 3450 XE
    - Dell Precision 3440 XE
      - Touch Monitor: Planar PCT2235
      - Touch Monitor: Dell P2424HT
    - Dell OptiPlex 5270 AIO
    - Dell OptiPlex 3050 AIO

        - Dell OptiPlex 7440 AIO
        - Dell OptiPlex 9030 AIO
        - Dell OptiPlex 9020 AIO
        - Dell OptiPlex 9010 AIO
- InoTec HiPro Scanner Client Workstation Configuration:
    - Desktop computer system per *2.02 Democracy Suite System Configuration Overview*
        - Dell OptiPlex XE4
        - Dell OptiPlex XE3
        - Dell OptiPlex 7070
        - Dell OptiPlex 7060
        - Dell OptiPlex 7050
        - Touch Monitor: Lenovo 10QXPAR1US
        - Touch Monitor: Lenovo 11GCPAR1US
        - Touch Monitor: Dell P2418HT
        - Non-Touch Monitor: Dell P2422H
        - Touch Monitor: Dell P2424HT
- Auxiliary Equipment:
    - iButton to 1-Wire USB Adapter: Dallas Maxim DS1402-RP8+
    - iButton Reader/Writer: Dallas Maxim DS9490R#
    - Compact Flash / SD Card Reader: Lexar Professional USB 3.0 Dual-Slot Card Reader
    - Compact Flash / SD Card Reader: Kingston USB 3.0 High-Speed Media Reader
    - Compact Flash / SD Card Reader: Hoodman Steel USB3
    - Compact Flash / SD Card Reader: Delkin Devices DDREADER-44
    - Compact Flash / SD Card Reader: IOGEAR GFR381
- Election Media:
    - iButton: Dallas Maxim DS1963S-F5+ (with Key Ring Mount DS9093A+)
    - USB Memory Device (16GB): Centon (BiCS4) PN: C4-CT-U3P2-16.3
    - USB Memory Device (16GB): Centon S4-CM-U3P2-16.1
    - USB Memory Device (16GB): Apacer EH353-M APHA016GAG0CG-3TM
    - USB Memory Device (8GB): Centon (BiCS4) PN: C4-CT-U3P2-8.3
    - USB Memory Device (8GB): Centon S4-CM-U3P2-8.1

- USB Memory Device (8GB): Apacer EH353-M APHA008GAG0CG-3TM
- USB Memory Device (4GB): Verbatim 97087
- Compact Flash Memory Cards (16GB): Centon C4-CM-CF-16.4
- Compact Flash Memory Cards (8GB): RiTek RDCF8G-233XMCB2-i
- Compact Flash Memory Cards (8GB): SanDisk SDCFHS-008G
- Compact Flash Memory Cards (4GB): SanDisk SDCFHS-004G

Precinct Vote Capture

ImageCast X with BMD (ICX BMD)

❖ Firmware version: 5.20.2.7

❖ Hardware version:

- Avalue SID-15V-Z37 (15.6 in. screen-Classic)
- Avalue SID-21V-Z37 (21.5 in. screen-Classic)
- Avalue HID-21V-BTX (21.5 in. screen-Prime) (steel or aluminum chassis)

Optional Hardware

- Accessible-Tactile Interface (ATI-USB) box
- ICX Classic BMD Transport Bag
- ICX Prime BMD Transport Bag
- ICX Privacy Screen
- ICX Voting Booth
- ICX Prime Battery Charger – Dual Bay

COTS Hardware

- UPS:
  - APC SMT-1500
  - APC SMT-1500C
  - CyberPower PR1500LCD
  - CyberPower PR1500LCD-VTVM
- Printer:
  - Avision Ap3061
  - HP M402dn
  - HP M402dne
  - HP M404dn

- HP M501dn
- HP 4001dn

- Election Media
  - USB Memory Device (128GB): Apricorn AEGIS Secure Key 3NX PN: ASK3-NX-128GB
  - USB Memory Device (32GB): Apricorn AEGIS Secure Key 3NX PN: ASK3-NX-32GB
  - USB Memory Device (16GB): Centon (BiCS4) PN: C4-CT-U3P2-16.3
  - USB Memory Device (16GB): Centon S4-CM-U3P2-16.1
  - USB Memory Device (16GB): Apacer EH353-M APHA016GAG0CG-3TM
  - USB Memory Device (8GB): Centon (BiCS4) PN: C4-CT-U3P2-8.3
  - USB Memory Device (8GB): Centon S4-CM-U3P2-8.1
  - USB Memory Device (8GB): Apacer EH353-M APHA008GAG0CG-3TM
  - USB Memory Device (4GB): Verbatim 97087
  - Smart Cards: ACS ACOS-6-64 v3090 and ACOS-6-64 v3100
  - Smart Cards: CardLogix C7

COTS Software

- Android 8.1.0-2.5.2
- Google TTS

Optional COTS Software

- None

Optional COTS Hardware

- Headphone: Cyber Acoustics ACM-70, ACM-70B or equivalent
- Sip & puff: Enabling Device #972
- Sip & puff straws: #970K (Pkg of 10)
- Paddle switches: Enabling Device #971
- Paddle switches: AbleNet 10033400 (2x)
- Paddle Switch Cable: Hosa Technology YMM-261 (for use with AbleNet switches)

ImageCast X VVPAT BMD (ICX VVPAT BMD)

❖ Firmware version: 5.20.2.7

❖ Hardware version:

- Avalue HID-21V-BTX (21.5 in. screen-Prime) (steel or aluminum chassis)

Optional Hardware

- Accessible-Tactile Interface (ATI-USB) box
- ICX Prime VVPAT Transport Bag
- ICX Leg Assembly
- ICX Privacy Screen
- ICX Voting Booth
- ICX Prime Battery Charger – Dual Bay

COTS Hardware

- VVPAT Printer: KFI 702-75250014A (V1)
- VVPAT Printer: KFI 702-75250014C (V1-C)
- Election Media
    - USB Memory Device (8GB): Centon (BiCS4) PN: C4-CT-U3P2-8.3
    - USB Memory Device (8GB): Centon S4-CM-U3P2-8.1
    - USB Memory Device (16GB): Centon (BiCS4) PN: C4-CT-U3P2-16.3
    - USB Memory Device (16GB): Centon S4-CM-U3P2-16.1
    - USB Memory Device (8GB): Apacer EH353-M APHA008GAG0CG-3TM
    - USB Memory Device (16GB): Apacer EH353-M APHA016GAG0CG-3TM
    - USB Memory Device (4GB): Verbatim 97087
    - Smart Cards: ACS ACOS-6-64 v3090 and ACOS-6-64 v3100
    - Smart Cards: CardLogix C7

COTS Software

- Android 8.1.0-2.5.2
- Google TTS

Optional COTS Software

- None

Optional COTS Hardware

- Headphone: Cyber Acoustics ACM-70, ACM-70B or equivalent
- Sip & puff: Enabling Device #972
- Sip & puff straws: #970K (Pkg of 10)
- Paddle switches: Enabling Device #971
- Paddle switches: AbleNet 10033400 (2x)
- Paddle Switch Cable: Hosa Technology YMM-261 (for use with AbleNet switches)

ImageCast Evolution (ICE)

- ❖ Firmware version: 5.20.2.3
- ❖ Hardware version: PCOS 410A (w/ smart card reader) PCOS-410A (w/o smart card reader)
- IR Sensor Board Firmware version: 1.0.003
- Motherboard FPGA version: 1.1.5
- Scanner Board FPGA version: 1.1.2
- Logger Controller version: 2.0.2
- Power Controller version: 3.0.5
- Integrated Printer Controller version: 4.1.7
- Bootloader version: 1.3.4.63
- Ballot Box Options
  - Stackable Molded Plastic: BOX-410A
  - Foldable Coroplast Plastic: BOX-420A

Optional Hardware

- Accessible-Tactile Interface (ATI-Serial) box
- Light Pole for Ballot Boxes

COTS Software

- None

COTS Hardware

- Election media:
  - iButton (Pollworker): Dallas Maxim DS1963S-F5+ (w/Black Key Ring Mount DS9093A+)
  - iButton (Admin/Tech): Dallas Maxim DS1963S-F5+ (w/Yellow Key Ring Mount DS9093AY+)
  - Compact Flash Memory Cards (16GB): Centon C4-CM-CF-16.4
  - Compact Flash Memory Cards (8GB): RiTek RDCF8G-233XMCB2-i

Optional COTS Software

- None

Optional COTS Hardware

- Headphone: Cyber Acoustics ACM-70, ACM-70B or equivalent
- Sip & puff: Enabling Device #972

- Sip & puff straws: #970K (Pkg of 10)
- Paddle switches: Enabling Device #971
- Paddle switches: AbleNet 10033400 (2x)
- Paddle Switch Cable: Hosa Technology YMM-261 (for use with AbleNet switches)
- Hardware for Dual Monitor configuration:
    - Secondary Monitor: AOC e1649FWU
    - Secondary Monitor: Display Logic LM15.6-USB-DV.B
    - Cable, USB, 10 ft.: TE Connectivity 1496476-4
    - Cable, USB, 10 ft.: Keyjoy 131-000004

ImageCast Precinct (ICP)

❖ Firmware version: 5.20.2.3

❖ Hardware version: PCOS-320A and PCOS-320C

- Ballot Box Options
    - Stackable Molded Plastic: BOX-330A
    - Collapsible Plastic: ElectionSource IM-COLLAPSIBLE BIN
    - Accessories: ICP Baseplate Adapter Kit for all listed Ballot Boxes

Optional Hardware

- Accessible-Tactile Interface (ATI-Serial) box

COTS Software

- Boot Loader (COLILO) 20040221

COTS Hardware

- Election media:
    - iButton (Pollworker): Dallas Maxim DS1963S-F5+ (w/Black Key Ring Mount DS9093A+)
    - iButton (Admin/Tech): Dallas Maxim DS1963S-F5+ (w/Blue Key Ring Mount DS9093AB+)
    - Compact Flash Memory Cards (16GB): Centon C4-CM-CF-16.4
    - Compact Flash Memory Cards (8GB): RiTek RDCF8G-233XMCB2-i
    - Compact Flash Memory Cards (8GB): SanDisk SDCFHS-008G
    - Compact Flash Memory Cards (4GB): SanDisk SDCFHS-004G

Optional COTS Software

- None

Optional COTS Hardware

- Headphone: Cyber Acoustics ACM-70, ACM-70B or equivalent
- Sip & puff: Enabling Device #972
- Sip & puff straws: #970K (Pkg of 10)
- Paddle switches: Enabling Device #971
- Paddle switches: AbleNet 10033400 (2x)
- Paddle Switch Cable: Hosa Technology YMM-261 (for use with AbleNet switches)

ImageCast Precinct (ICP2)

❖ Firmware version: 5.20.2.2

❖ Hardware version: PCOS-330A

- Ballot Box Options
    - Stackable Molded Plastic: BOX-350A
    - Collapsible Plastic: ElectionSource IM-COLLAPSIBLE BIN

Optional Hardware

- None

COTS Software

- None

COTS Hardware

- Election media:
    - iButton (Pollworker): Dallas Maxim DS1963S-F5+ (w/Black Key Ring Mount DS9093A+)
    - iButton (Admin/Tech): Dallas Maxim DS1963S-F5+ (w/Yellow Key Ring Mount DS9093AY+)
    - SDHC Memory Cards (16GB):
        - Centon (BiCS5) PN: C4-ET-SDU3-16.1
    - SDHC Memory Cards (8GB):
        - Centon (BiCS4) PN: S4-ET-SDU3-8.1
        - Centon S4-CM-SDHU1-8G-002
        - Centon C4-CM-SDU1-8.2
- Apacer (BiCS5) PN: AJ3.148FSA.00105