

Certification Test Report

Report Number 06-V-DB-058-CTR-01

Premier Election Solutions Assure 1.2 Voting System

Incorporating

GEMS, AccuVote-OS PC & CC, AccuFeed, AccuVote-OSX, AccuVote-TSX & R6, EMP, Key Card Tool, Voter Card Encoder, VCProgrammer, ExpressPoll 2000, 4000, & 5000, CTS, Assure Security Manager, AutoMark AIMS & VAT

Certification Test Report Rev 01

February 22, 2008

EAC Certification number- [# Pending]

Prepared for:

Vendor Name	Premier Election Solutions, Inc.
Vendor System	Premier Election Solutions, Inc. Assure ® 1.2 Voting System
EAC Application No.	DBD0701
Vendor Address	1253 Allen Station Parkway P.O. Box 1019 Allen, TX 75013

Prepared by:



216 16th St.
Suite 700
Denver, CO 80202

Accredited by the Election Assistance Commission (EAC) for Selected Voting System Test Methods or Services

Revision History

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1 Introduction

SysTest Labs Incorporated is submitting this report as a summary of the certification testing efforts for Premier Election Solutions' Assure 1.2 Voting System, consisting of: GEMS, AccuVote-OS PC & CC, AccuFeed, AccuVote-OSX, AccuVote-TSX & R6, EMP, Key Card Tool, Voter Card Encoder, VCProgrammer, ExpressPoll 2000, 4000, & 5000, PCS, Assure Security Manager, and AutoMark AIMS & VAT. The purpose of this document is to provide an overview of the certification testing effort and the findings of the testing effort for Assure 1.2. This effort included documentation review of the Technical Data Package, source code review, and testing of the Assure 1.2 voting system.

Testing consisted of the development of a test plan, managing system configurations, executing of functional test cases based on the Premier test requirements, system level tests prepared by SysTest Labs and analysis of results. The review and testing was performed at SysTest Labs' Denver, Colorado facility. SysTest Labs is a full service third party testing facility, founded in May 1996, from a software test-consulting firm.

The specific system testing services offered include:

- Test Planning and Test Management
- eBusiness, Client-Server and Stand-alone Application Functional, Compatibility and Regression Testing
- eBusiness and Client-Server Load and Performance Testing
- Automated Regression Test Development, Consulting, Scripting and Execution
- Complex, Integrated Test Solutions And Automated Test Harnesses
- Independent Verification and Validation
- EAC approved Voting System Test Laboratory

SysTest Labs maintains partnerships with software test tool vendor companies Mercury Interactive, Rational Software, Borland, and Compuware.

1.1 References

1. Federal Election Commission Voting System Standards (FEC VSS), April 2002. *Volume I Performance Standards*: Section 1 Introduction 1.6.1; Section 2 Functional Capabilities; Section 3 Hardware Standards; Section 7 Quality Assurance 7.1, 7.4, 7.6, and 7.7; Section 8 Configuration Management 8.1; Section 9 Overview of Qualification Tests 9.2, 9.4.1, 9.4.1.1, 9.4.2, 9.5, 9.5.2, 9.5.2.1, 9.5.2.2, 9.6, and 9.6.1.2. *Volume II Test Standards*: Section 1 Introduction 1.3 and 1.4; Section 2 Technical Data Package; Section 3 Functionality Testing 3.2.1, 3.2.2, 3.2.3, and 3.2.4; Section 6 System Level Integration Testing 6.6 and 6.7; Section 7 Examination of Vendor Practices for Configuration Management and Quality Assurance 7.5 and 7.5.1; Appendix A Qualification Test Plan A.2 and A.3.
2. NIST NVLAP Handbook 150: 2006.
3. NIST NVLAP Handbook and 150-22: 2005.
4. EAC Testing and Certification Program Manual, United States Election Assistance Commission, 2006.
5. IEEE Standard for Software Quality Assurance Plans IEEE Std 730-1998, October 20th, 1998.
6. IEEE Standard for Software Configuration Management Plans IEEE Std 828-1998, June 25th, 1998.
7. IEEE Standard for Software Test Documentation IEEE Std 829-1998, December 16th, 1998.
8. IEEE Recommended Practice for Software Requirements Specifications IEEE Std 830-1998, October 20th, 1998.
9. IEEE Standard for Software Unit Testing IEEE Std 1008-1987, December 29th, 1986.
10. IEEE Standard for Software Verification and Validation IEEE Std 1012-1998, July 20th, 1998.
11. SysTest Labs Quality System Manual, Rev. 1.0, prepared by SysTest Labs, dated November 3, 2006.

1.2 Document Overview

This document contains:

- The Introduction discusses the application tested/reviewed.
- The Certification Test Background discusses the testing process.
- The System Overview discusses the functionality of Assure 1.2 voting system software and firmware.
- The System Identification identifies hardware and software for the Assure 1.2 voting system.
- The Certification Tests Results Summary is a summary of the testing effort.
- The Recommendations section contains the final analysis of the testing effort.
- The Appendices contain Test Operations, Findings and Data Analysis. They also contain the EAC Certification information after the system has been qualified.
 - Appendix A: Test Results
 - Appendix B: EAC Certification Number
- The attachments contain test result data.
 - Attachment A: Certification Test Requirement compliance with the FEC VSS
 - Attachment B: Technical Data Package Reviews
 - Attachment C: Source Code Reviewed - PROPRIETARY
 - Attachment D-1: Source Code Discrepancy Report - PROPRIETARY
 - Attachment D-2: Documentation Discrepancy Report
 - Attachment D-3: Functional Discrepancy Reports
 - Attachment E: TDP Document List
 - Attachment F: Trusted Build Report
 - Attachment G: Quality Assurance - Configuration Management Interviews & Surveys
 - Attachment H: Hardware Test Reports
 - Attachment I: COTS Software
 - Attachment J: Assure Purchaser Delivered Documentation

Accessing Attachments

- **To access attachments in Adobe Reader:**
Select View > Navigation Tabs (or Panels) > Attachments. A tab will become available on the left side of the screen, and you can select and open attachments by clicking on the tab.
- **To access attachments in Adobe Acrobat:**
Select Document > File Attachments. A dialog box appears allowing you to select and open attachments.

2 Certification Test Background

2.1 PCA - Document and Source Code Reviews

The Physical Configuration Audit (PCA) review of Premier Assure 1.2 voting system documentation submitted in the Technical Data Package (TDP) was executed in order to verify conformance with Federal Election Commission Voting System Standards (FEC VSS) April 2002.

Source Code was reviewed for Assure 1.2 in order to verify conformance with the FEC VSS 2002 standards. All reviews were conducted in accordance with *Volume 1 Section 4.2, as well as Volume 2 Section 5* of the FEC VSS April 2002, to demonstrate that the system source code meets or exceeds the requirements of the FEC VSS.

Results of the source code review were recorded for each submitted application. Please see attachment C1 for a listing of the source code items reviewed. The discrepancy report for source code can be found in attachment D1.

Documentation was reviewed for Assure 1.2, as outlined in the FEC VSS. All reviews were conducted in accordance with *Volume 2 Section 2* of the FEC VSS April 2002, to demonstrate that the system documentation meets or exceeds the requirements of the FEC VSS.

Results of the PCA documentation review were recorded for each document reviewed. Please see attachment B for a listing of the results of the review. The discrepancy report for source code can be found in attachment D3.

2.2 FCA - Functional & System Testing and Sampling

The Functional Configuration Audit (FCA) review of the test documentation submitted by Premier in the TDP was executed in order to verify testing of the voting system requirements defined in *Volume 1 Sections 2, 5, 6, and 8* of the FEC VSS April 2002.

SysTest Labs' standard System Level Test Cases were customized for Premier and conducted in accordance with *Volume 2 Section 6*, in conjunction with the functional testing. Simulations of elections were conducted to demonstrate a beginning-to-end business use case process for the Assure 1.2 voting system.

Any test issues found during the project were identified to Premier in a Discrepancy Report for resolution or comment. Premier resolved all discrepancies that did not comply with the April 2002 FEC VSS requirements, which were verified as acceptable after regression testing by SysTest Labs.

Status Reports were emailed to Premier. These reports reflected the daily and weekly test activities including: project task status, issues found, and schedule / project management

information. All results of the FCA testing conducted can be found in appendix A of this Certification Report.

2.3 Functional Tests

The following functional areas exist for Premier Assure 1.2 voting system, as described in the table below. Functionality was tested, as identified in the Test Methodology column.

Table 1 – Functional Tests

Function	Test Methodology
Ballot Preparation Functions	
<i>a.</i> Ballot preparation subsystem	Verify the election is defined for election day, and one more precinct/polling place can be defined.
Before, During & After Processing of Ballots	
<i>b.1.</i> Logic Test – Interpretation of Ballot Styles & recognition of precincts	Verify in Functional Tests: Verify voting variation functionality identified (Vol. 1 Section 2.2.8.2).
<i>b.2.</i> Accuracy Test – Ballot recording/reading accuracy	Verify with the processing of 1,549,703 consecutive ballot positions with no errors, or 3,126,404 with one error (Vol. 2 Section 4.7.1.1).
<i>b.3.</i> Status Tests – Equipment statement & memory contents	Verify in Functional Tests: Equipment statement & memory contents at the corresponding intervals outlined in user documentation for functions a., b.4., c.1.-7., d.1.-8.
<i>b.4.</i> Report Generation – Produce test output data	Verify in Functional Tests: Clearing Election Totals Generating a Zero Report Testing an Election Creating Test Reports Clearing Totals for Election Day Selecting Reporting Groups Loading Scanner Totals Producing Election Reports Displaying Election Information Merging Copied Election Results into the Central Count
<i>b.5.</i> Report Generation – Produce audit data	Verify in Functional Tests: System audit reports voting
Polling Place Functions	
<i>c.1.</i> Opening the polls, accepting & counting ballots	Verify in Functional Tests: Zero Reports Scan paper ballots Alerts for over votes and under votes

Function	Test Methodology
c.2. Monitoring equipment status	Verify in Functional Tests: Equipment status as identified in user documentation
c.3. Equipment response to commands	Verify in Functional Tests: Equipment response to all voter and poll worker commands as identified in user documentation
c.4. Generating real-time audit messages	Verify in Functional Tests: Print audit log all systems Audit messages must meet some minimum standards for information contained and clarity/usability of communication. Example: -Each audit message should contain a timestamp at the beginning of the audit trail. -The election identifier and software/firmware releases should be listed. -If the message pertains to results (i.e. inserted, added, deleted), the precinct IDs should be listed. -The number of ballots processed should be stated whenever results are uploaded into the accumulation program.
c.5. Closing polls and disabling ballot acceptance	Verify in Functional Tests: Inability to cast additional ballots, Close of polls, Inability to scan additional ballots
c.6. Generating election data reports	Verify in Functional Tests: Generation of precinct reports
c.7. Transfer ballot count to central counting location	Verify in Functional Tests: Writing election to media
c.8. Electronic transmission of election data to a central counting location	Verify in Functional Tests: Confirming transmission, receipt, and validity of data interactively and with reports
Central Count Functions	
d.1. Process ballot deck or PMD for >1 precinct	Verify in Functional Tests: Process of ballot decks
d.2. Monitoring equipment status	Verify in Functional Tests: Equipment status as identified in user documentation
d.3. Equipment response to commands	Verify in Functional Tests: Equipment response to all voter and poll worker commands as identified in user documentation
d.4. Integration with peripherals equipment or other data processing systems	See b.3.
d.5. Generating real-time audit messages.	See b.3 and b.4.
d.6. Generating precinct-level election data reports	Verify in Functional Tests: Generation of precinct reports

Function	Test Methodology
d.7. Generating summary election data reports	See b.4.
d.8. Transfer of detachable memory module to the processing equipment	See b.3.
d.9. Electronic transmission of data to other processing equipment	Verify in Functional Tests: Confirming transmission, receipt, and validity of data interactively and with reports
d.10. Producing output data for interrogation by external display devices	Verify in Functional Tests: Confirming transmission, receipt, and validity of data interactively and with reports where possible

2.4 System Level and Other Functional Tests

The following system level and functional level tests were executed in order to validate the Assure 1.2 voting system against the FEC VSS 2002 standards as described in the table below. The system was tested, as identified in the Test Methodology column.

Table 2 – System Level and Other Functional Tests

System Level and Other Functional Testing	Test Methodology
Volume Test	
System's response to processing more than the expected number of ballots/voters per precinct, to processing more than the expected number of precincts, or to any other similar conditions that tend to overload the system's capacity to process, store, and report data.	Accuracy Test Case and Volume Test Case
Stress Tests	
System's responses to transient overload conditions. Subject polling place devices to ballot processing at the high volume rates, evaluate software response to hardware-generated interrupts and wait states.	Hardware is tested to limits outside the range of 'normal' but within specifications for the units.
Usability Tests	
Responses to input, text syntax, error message content, and audit message input	All System-Level Test Cases
Accessibility Test	
Exercises system capabilities of voters with disability features	System-Level Test Case GEN 03
Security Test	
Exercises systems security provisions, unauthorized access, deletion or modification of data, audit trail data, and modification or elimination of security mechanisms.	Security Test case for each component

System Level and Other Functional Testing	Test Methodology
Telecommunications Test Exercises telecommunications, maintaining data integrity, protection against external threats, monitoring and responding to external threats, shared operating environment, incomplete election returns, and use of public communications networks.	Telecommunications Test case
Performance Tests Tests accuracy, processing rate, ballot format, handling capability and other performance attributes claimed by Premier.	All System Test Cases
Recovery Tests Exercise system's ability to recover from hardware and data errors.	Security Test Case

2.5 Hardware and Environmental Testing

SysTest Labs and its environmental hardware test subcontractors performed reviews of test reports for equipment that had been previously submitted to environmental testing, under the FEC VSS 2002 guidelines. The reports were scrutinized to determine if the standards had been applied in a satisfactory way; if a determination was made that a requirement was needed to be retested, then additional testing was scheduled.

2.6 Terms and Abbreviations

The following terms and abbreviations will be used throughout this document:

Table 3 – Terms and Abbreviations

Term	Abbreviation	Description
AccuView Printer [®] Module	AVPM	The AVPM firmware is used to control the take-up motor on the AVPM device.
AccuVote Optical Scan	AccuVote-OS or AVOS	Premier's Optical Scan voting equipment
AccuVote Touch Screen	AccuVote-TS	Premier's Touch Screen Direct Recording Electronic (DRE) voting equipment
AccuVote-OS Accumulator Adapter	OSAA	OSAA (AccuVote-OS Accumulator Adapter) is used to accumulate AccuVote-OS results on an AccuVote-TS/TSX unit. The OSAA adapter is inserted into the AccuVote-TS/TSX PCMCIA slot and allows the AccuVote-OS memory cards to be read by the AccuVote-TS/TSX device.
AutoMARK Information Management System	AIMS	The AIMS software is used to prepare the data for the AutoMARK electronic ballot marker. The AIMS software imports election data from GEMS and allows the user to modify it as necessary for the AutoMARK EBM device.
BootLoader	BL	The BootLoader (BL) is used by the AccuVote-TS/TSX/OSX to startup the system, validate the WinCE image and then start Windows CE.
Compact Flash	CF	CF Cards are used in ATS VAT ballot marking devices, and with the ExpressPoll CardWriter.
Direct Recording Electronic Election Media Processor	DRE	Touch Screen voting device.
	EMP	The EMP (Election Media Processor) is a desktop PC with multiple PCMCIA card readers and a label printer. EMP is used to download and upload PCMCIA storage cards for use on the AccuVote-TS/TSX. This device is connected to GEMS via a high-speed network connection.
ExpressPoll CardWriter		The ExpressPoll 2000, 4000, and 5000 are small devices that can run the EZRoster electronic poll book application. They also provide the functionality, through the CardWriter software, to be able to create Voter Cards for use by the AccuVote-TS/TSX devices.
Global Election Management System	GEMS	GEMS is Premier Election Solutions' Election Management System. This product is used to enter jurisdiction information (district, precincts, languages, etc.) as well as election specific information (races, candidates, voter groups (parties), etc. GEMS is also used to layout the ballots, download the election data to the voting devices, upload the results and produce the final results reports.
Premier Central Scan	PCS	PCS downloads the election information from GEMS, scans and tallies ballots, and then uploads the results to GEMS.
Technical Data Package	TDP	Functional Requirements, Specifications, End-user documentation, Procedures, System Overview, Configuration Management Plan, Quality Assurance Program, and manuals for each of the required hardware, software, firmware components of the Assure 1.2 voting system.

Term	Abbreviation	Description
Universal ADA Interface Device	UAID	The Universal ADA Interface Device (UAID) facilitates accessibility features to further enhance the ability of physically challenged voters to independently and privately make candidate selections and cast ballots.
VCProgrammer		VCProgrammer is a PC based application that is used to create voter cards for the AccuVote-TS/TSX. VCProgrammer has the ability to be integrated with 3 rd party Voter Registration Systems to allow those systems to create the voter cards. The VCProgrammer uses a file that is exported from GEMS. When used with a voter registration system, it also requires the data provide by the VR system to create the Vote Card.
Voter Assist Terminal	VAT	The AutoMARK VAT device is used to allow voters to electronically mark a ballot that will be scanned by the AccuVote-OS device. The AutoMARK VAT supports audio ballot as well as visual ballot marking.
Voter Card Encoder	VCE	VCE (Voter Card Encoder) is a small hand-held device that is used to create Voter Cards. The VCE is loaded with master Voter Card Images and then allows the user to create new Voter Cards from those masters.
Key Card Tool	KCT	KCT (Key Card Tool) is a software application that uses a smart card reader to create security keys, Central Administrator cards, and Supervisor cards to be used with Premier components.

2.7 Review of State Testing Reports: Ohio, Colorado

2.7.1 Ohio

After reviewing the Premier Election Solutions portion of the Everest report, SysTest Labs determined that the testing done with the Everest report either was covered by SysTest Labs' own security testing performed, or fell outside the scope of the VSS requirements and went beyond the testing necessary for Federal certification.

2.7.2 Colorado

SysTest Labs has made the determination, in regards to the qualification report done for the Colorado Secretary of State, that the restrictions and recommendations found in the qualification report either fall outside of the scope of the VSS requirements or were covered by the VSS requirements themselves.

2.7.3 Summary

After reviewing the Ohio and Colorado test reports, with regard to Premier, SysTest Labs has made the determination that no additional testing was called for at the federal certification level.

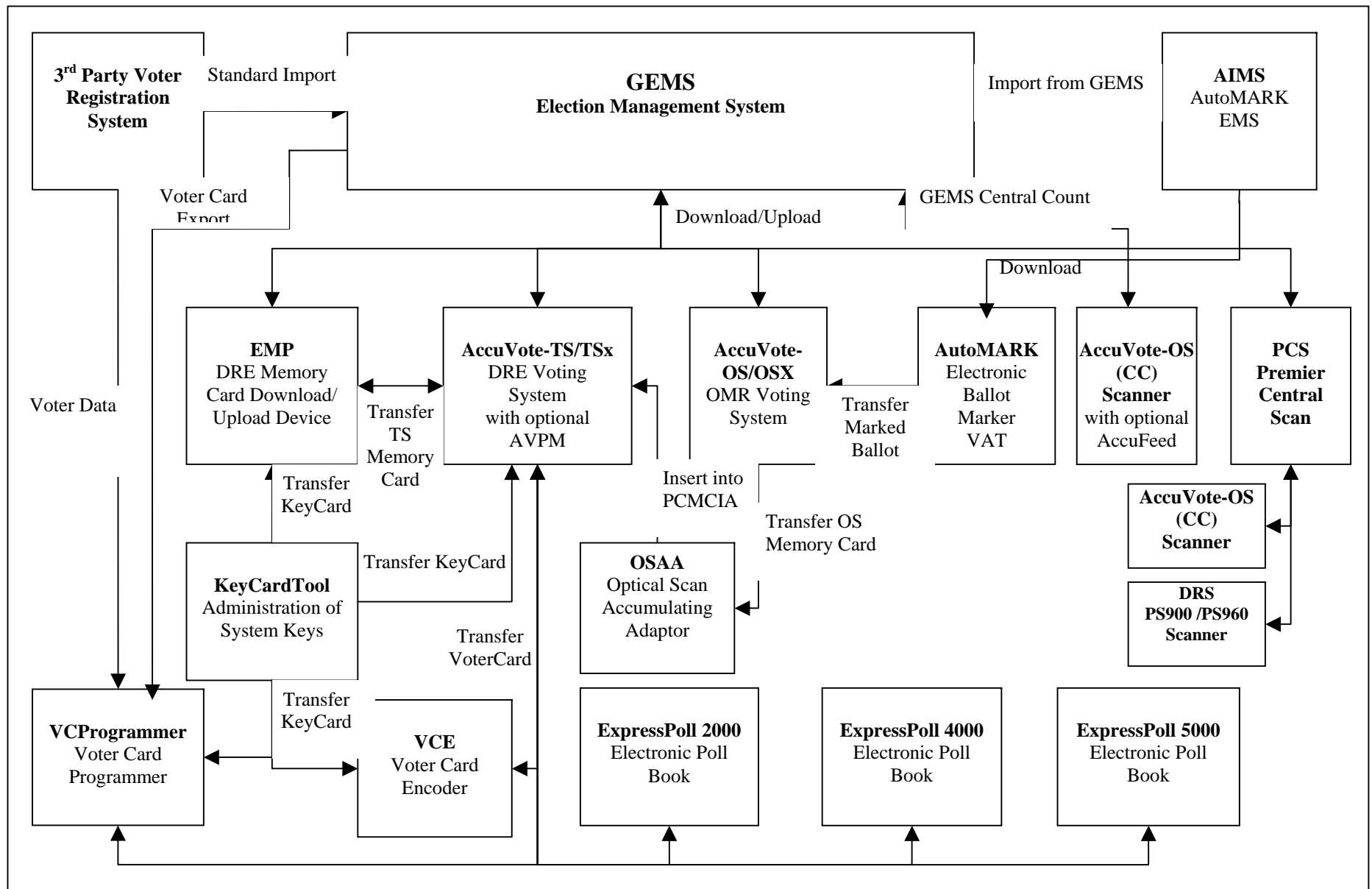
3 System Overview

The Premier Assure 1.2 voting system consists of the following software and hardware components:

- **GEMS** is a software application used to create the election, lay out the ballots, download the election data to the voting devices, upload the results and produce the final results reports.
- **AIMS** is a pc based application that imports the election data created from GEMS and formats the data in order for the ballot information to be correctly displayed on the AutoMark Voter Assist Terminal (VAT), which is an ADA (Americans with Disabilities Act) electronic ballot marking device.
- The polling place devices consist of **ExpressPoll CardWriter 2000, 4000, and 5000**. The ExpressPoll units run EZRoster electronic poll book application to create Voter Cards for use with Premier's DRE components. The ExpressPoll Units will be operated on a standalone basis, without any active connection to other devices.
- The **AccuVote-TS R6** and **AccuVote-TSX** (DRE components) are Assure 1.2 voting system's direct recording electronic voting equipment.
- The Election Media Processor (**EMP**) is a software application run on a PC with a multiple PCMCIA card reader that is used to communicate with GEMS and create election media and transmit results from multiple cards.
- The **Voter Card Encoder (VCE)** is a small hand-held device that is used to create Voter Cards for use with the AccuVote-TS R6/TSX.
- **VCProgrammer** is a pc based software application also used to create Voter Cards for the AccuVote-TS R6/TSX.
- **Key Card Tool (KCT)** is a pc based software application designed to create Security Keys, Central Administrator cards, and Supervisor Cards to be used with the applicable Premier components.
- **AccuVote-OS and OSX** are mark-sense precinct count scanners. With Central Count firmware installed, the AccuVote-OS can be used at the central counting location for the election.
- **PCS** is a central tally application that is supported by a variety of scanners, including the DRS PS900 iM2, DRS PS960, and AccuVote-OS with Central Count Firmware installed.

Figure 1, below, illustrates the Assure 1.2 voting system, in diagram form.

Figure 1 Assure 1.2 Product Overview



4 System Identification

This section, System Identification, gives information about the tested software and supporting hardware. Included in this description are:

- System name and major subsystems (or equivalent)
- System version
- Test Support hardware
- Specific documentation provided in the vendors TDP used to support testing

The Premier Assure 1.2 voting system was submitted for certification testing with the software and firmware listed in Table 4, and the hardware listed in Table 5 below.

Please note that AutoMark AIMS & VAT devices were included as part of the Premier system.

Table 6 lists the test materials needed to perform the testing.

Table 7 provides a listing of the Assure 1.2 voting systems declared voting variations and languages.

4.1 Software and Firmware

Table 4 – Matrix of Software and Firmware

Item	Mfr.	Version	Test Type
GEMS	Premier	1.20.2	Election Management System – Pre/Post Voting, Election Definition, Ballot Styles, Voting Results Reporting
AccuVote-OS PC	Premier	1.96.10	Voting – Ballot Scanning
AccuVote-OS CC	Premier	2.0.13	Voting – Central Ballot Scanning
AccuVote-OSX	Premier	1.0.3	Voting – Ballot Scanning
BallotStation	Premier	4.7.2	Voting – Touchscreen Voting Software
EMP	Premier	4.7.1	Pre/Post Voting – Simultaneously Transfer Data To and From Multiple Memory Cards
Key Card Tool	Premier	4.7.1	Pre-voting creation of Security Keys, Central Admin Cards, and Supervisor cards
VCProgrammer	Premier	4.7.1	Voter Card Activation for Touchscreen Voting According to Voter Registration Information
Voter Card Encoder	Premier	1.3.3	Voter Card Creation According to Preconfigured Ballot Styles
ExpressPoll CardWriter	Premier	1.1.6	Electronic Poll Book Function to Create Voter Cards for Touchscreen Voting
PCS	Premier	2.0.5	Voting - Central Ballots Scanning
ASSURE Security Manager	Premier	1.0.4	Controls security & access to the Premier Central Scan (PCS) applications/devices
AutoMARK AIMS	ATS	1.3 (P)	Pre-Voting Interpretation of GEMS Ballot Style Data To Be Transferred to CF Cards
VAT Firmware	ATS	1.3 PVR	Voting on VAT Touchscreen Ballot Marking Devices – Full Featured Version, Including Scanned Ballot Display
VAT Firmware	ATS	1.3 PAVR	Voting on VAT Touchscreen Ballot Marking Devices with Audio Ballot Reporting Only
BootLoader (BL)	Premier	1.3.9	Voting - Boots and Loads the Operating System and Application Software on the OSX and Touchscreen Machines

Item	Mfr.	Version	Test Type
WinCE	Premier	300.3.4	Voting – Operating System for the AccuVote TS-R6 Touchscreen Machines
WinCE	Premier	410.3.9	Voting – Operating System for the AccuVote TSX Touchscreen Machines
WinCE	Premier	500.3.1	Voting – Ballot Scanning on the AccuVote OSX
AVPM	Premier	3.0.3	Voting – Printing Voter Verifiable Paper Record of Voting on the AccuVote TSX Touchscreen Machines (AVPM Model A)
ABasic Compiler	Premier	2.2.3	Voting – Facilitates Reporting of Voting Results on AccuVote OS with GEMS
ABasic Report Files	Premier	2.2.3	Voting – Facilitates Reporting of Voting Results on AccuVote OS with GEMS
COTS Application(s)	Mfr.	Version	Assure 1.2 Application
Windows	Microsoft	XP Professional	Host Operating System for GEMS, EMP, Key Card Tool, PCS, VCProgrammer, Assure Security Manager, AIMS
Windows	Microsoft	2000 Server	Host Operating System for GEMS
Windows	Microsoft	2003 Server	Host Operating System for GEMS, Key Card Tool, VCProgrammer
Windows CE	Applied Data Systems	5.0.0.17	Host Operating System for ATS VAT

4.2 Hardware Equipment

This section consists of a table that describes the hardware to be used in the testing process. Additional information regarding the equipment use in the testing cycle can be found within each individual test case.

Table 5 – Matrix of Hardware

Item	Manufacturer	Model	HW, O/S, FW, Version	Description of Use
AccuVote-TS R6 DRE	Premier	A and B with BootLoader (BL) Optional: OSAA Model A, UAID Model A	O/S: WinCE 300 FW: BL 1.3.9, BallotStation 4.7.2	The AccuVote-TS R6 DRE is a direct recording electronic device, operated by voters via a touch screen interface. May be used with optional OSAA (Optical Scan Accumulator Adapter), UAID (Universal ADA Interface Device).
AccuVote-TSX DRE	Premier	A, B, C, D with BL Optional: OSAA Model A, UAID Model A, AVPM Model A	O/S: WinCE 410 FW: BL 1.3.9, BallotStation 4.7.2	The AccuVote TSX is a Direct Recording Electronic (DRE) touchscreen voting machine. Voting is achieved by inserting a Voter Access Card into the AccuVote-TSX card reader slot, which in turn causes display of the voter's applicable ballot. The AccuView Printer Modules (AVPM) attach to the AccuVote TSx unit for printing of ballot records, which enable voters to verify their

Item	Manufacturer	Model	HW, O/S, FW, Version	Description of Use
				choices before casting their ballots.
AccuVote Optical Scan Precinct Count (PC)	Premier	A, B, C, D	FW: 1.96.10	The AccuVote Optical Scan (OS) is a mark sense-based ballot counting device, which can be installed with the Precinct Count (PC) firmware or the Central Count (CC) firmware. The AccuVote OS, installed with the Precinct Count firmware is used on a stand-alone basis and is loaded with a memory card, which is programmed with the appropriate ballot information. The memory card also contains the tallied results of ballots scanned on the AccuVote OS.
AccuVote Optical Scan Central Count (CC)	Premier	A, B, C, D Optional: AccuFeed Model A	FW: 2.0.13	The AccuVote-CC (Central Count) is a mark-sense device that is used to scan ballots at a central location either using the GEMS Central Count system or PCS. The AccuVote-CC is the same hardware as the AccuVote-OS but using different firmware (also see the description above). The AccuFeed Model A unit provides automated multi-sheet feeding capability.
AccuVote Optical Scan OSX	Premier	A with BL	O/S: WinCE 500 FW: BL 1.3.9, OSX 1.0.3	The AccuVote-OSX is a mark sense-based ballot counting device (also see the AccuVote-OS description above).
EMP	Premier	D (COTS)	O/S: Windows XP FW: 4.7.1	The Election Media Processor (EMP) is a bulk PCMCIA memory card download and upload device for the AccuVote-TS. It provides for simultaneous transmission of up to six memory cards.
Key Card Tool	Premier		O/S: Windows XP Windows 2003 FW: 4.7.1	This software tool runs on a Windows PC and uses a card encoder to generate a security key card, which is used to enable the VCProgrammer, EMP, Voter Card Encoder, and AccuVote-TS/TSX and ExpressPoll units.
VCProgrammer	Premier		O/S: Windows XP Windows 2003 FW: 4.7.1	VCProgrammer is a PC based application which, when used with an external smart card reading device, creates voter access cards for use on AccuVote-TS/TSX Ballot Station units. The application encodes voter access cards for an election using an exported file from the GEMS election database. VCProgrammer identifies the ballot

Item	Manufacturer	Model	HW, O/S, FW, Version	Description of Use
				information from this file and copies it onto a voter access card.
Voter Card Encoder (COTS)	Spyrus		FW: 1.3.3	The Voter Card Encoder writes the voter's precinct and party combination and desired voting options (i.e., audio or visual ballot), and encodes this information to a voter access card.
DRS PhotoScribe (COTS)	DRS Data & Research Services, PLC	PS900 iM2, PS960	O/S: Windows XP FW: 2.0.5	Premier Central Scan (PCS) is a high-volume ballot scanning device. There are two models of the PhotoScribe (PS) units: PS900 iM2 and the PS960
ExpressPoll (COTS)	2000–Gotive 4000–Advantech 5000–Advantech	2000, 4000, 5000	FW: 1.1.6	The ExpressPoll 2000, 4000, and 5000 are small devices that can run the EZRoster electronic poll book application. They also provide the functionality, through the CardWriter software, to be able to create Voter Cards for use by the AccuVote-TS/TSX devices.
VAT Optional: AT device (puff-sip or foot pedal)	AutoMARK	A100, A200, A300	O/S: WinCE 5.0.0.17 (COTS) FW: 1.3 PVR or 1.3 PAVR	The AutoMARK Voter Assist Terminal (VAT) device allows voters to electronically mark a ballot, by using the touch screen Braille keypad or an AT (Assistive Technology) device, that will be scanned by the AccuVote-OS, AccuVote-OSX, and DRS PhotoScribe devices.
AccuView Printer Module (AVPM)	Premier	Model A	3.0.3	Printer of continuous voter-verifiable paper record for the AccuVote-TSX.
PC	COTS		O/S: Windows XP Professional	GEMS, EMP, Key Card Tool, VCProgrammer, PCS, ASSURE Security Manager, AIMS
PC	DELL		O/S: Windows XP Professional, 2000 Server, 2003 Server	XP, 2000, 2003: GEMS XP, 2003: Key Card Tool, VCProgrammer XP: PCS, EMP, ASSURE Security Manager

4.3 Test Materials

Items identified in the table reflect test materials required to perform hardware, software, telecommunications, security, accuracy and integrated system tests.

Table 6 – Matrix of Test Materials

Item	Provided By	Description of Use
VAT, PCS, AccuVote-OS and OSX, ballots	Premier	Ballots to be tested through mechanized or manual marking and optical scanning.
Ballot Marking Pens	Premier	Specifically recommended pens for marking ballots.
AccuVote-OS control cards	Premier	Control Cards are used to signal to the scanner the beginning and ending of a stream of ballots being scanned.
AccuVote-OS keys	Premier	Keys are used to unlock and open the printer access hatch on the OS, and also to secure the OS on a ballot box.
AccuVote-OS memory cards	Premier	These cards contain election definition information used for ballot scanning.
AccuVote-TS audio voting equipment	Premier	Used for ADA accessibility for voters needing audio support, including languages other than English.
AccuVote-TS keys	Premier	Keys are used to secure openings for memory cards and printer modules.
AccuVote-TS memory cards	Premier	These cards contain election definition information, and they store vote data from ballot scanning.
Central Administrator cards	Premier	Created by the Key Card Tool application, these cards are used to control supervisor/administrator access to the AVOSX, TSX, and R6 components.
ExpressPoll flash cards	Premier	ExpressPoll flash cards contain voter registration data for use in activating voter cards.
VAT CF cards	AutoMARK	These memory cards contain election/ballot style information for use on the VAT.
VAT Ink Cartridges	AutoMARK	Ink cartridges are used in the VAT for ballot marking.
OSAA units	Premier	The OSAA is an adapter to enable transferring data between AccuVote OS memory cards and the AccuVote TSX touchscreen machines via the TSX PCMCIA card slot.
Smart card readers	Premier	An external device used in conjunction with the Key Card Tool to authenticate a smart card encoded with user-defined security codes or keys.
Supervisor cards	Premier	Created by the Key Card Tool application, these cards are used to control supervisor/administrator access to the AVOSX, TSX, and R6 components
Voter access cards	Premier	Used by voters to vote on the touchscreen units.
Voter Card Encoders	Premier	Used to create active voter access cards.
Voter Card Encoder battery	Premier	Used to operate the voter card by battery without a live power connection.
Voting booth	Premier	Intended to provide the voter with privacy while voting.
Null Modem Adapter	SysTest	Adapt EPROM burner device to Trusted Build PC for firmware installation on chips for AccuVote-OS CC and PC.
Laser Printer and USB Cable	SysTest	Laser Printer and cable used to connect to GEMS server for running testing reports.
Paper and Manila Folders	SysTest	For printing reports and organizing paperwork and test ballots.
Headset and Microphone	SysTest	For audio recording of voting information for testing to HAVA/ADA/VSS requirements.

Item	Provided By	Description of Use
Power Strips	SysTest	Used to provide power connections for multiple devices during testing.

4.4 TDP Documents Used to Support Testing

The vendor documents used to support Certification Testing are listed in the sub-attachments in Attachment B.

4.5 Supported Functionality and Languages

The following table outlines the functionality and languages declared as supported within Assure 1.2. This information is used to assist in the determination of what is to be tested during the FCA testing cycle.

Table 7 – Supported Functionality and Languages

Voting Variations Functionality & Languages Vol. 1 Sect 2.2.8.2 ,2.3.1.3.1.a, 2.4.3.3, 3.2.5.1.2, 3,2,5,1,3 4.4.4, & 10	Sup- ported	Unsup- ported	Required description(s)
<i>Voter Verified Paper Audit Trails</i>			
VVPAT	✓		
<i>Accessibility (vol. 1. sect. 2.2.7)</i>			
Forward Approach	✓		
Parallel (Side) Approach	✓		
<i>Closed Primary (vol. 1. sect. 2.2.8.2)</i>			
Primary: Closed	✓		
<i>Open Primary (vol. 1. sect. 2.2.8.2)</i>			
Primary: Open Standard (provide definition of how supported)	✓		Open Primary, supported.
Primary: Open Blanket (provide definition of how supported)	✓		
<i>Partisan & Non-Partisan: (vol. 1. sect. 2.2.8.2)</i>			
Partisan & Non-Partisan: Vote for 1 of N race	✓		
Partisan & Non-Partisan: Multi-member (“vote for N of M”) board races	✓		
Partisan & Non-Partisan: “vote for 1” race with a single candidate and write-in voting	✓		
Partisan & Non-Partisan “vote for 1” race with no declared candidates and write-in voting	✓		
<i>Write-In Voting: (vol. 1. sect. 2.2.8.2)</i>			

Voting Variations Functionality & Languages Vol. 1 Sect 2.2.8.2 ,2.3.1.3.1.a, 2.4.3.3, 3.2.5.1.2, 3,2,5,1,3 4.4.4, & 10	Sup- ported	Unsup- ported	Required description(s)
Write-in Voting: System default is a voting position identified for write-ins.	✓		
Write-in Voting: Without selecting a write in position.		✓	
Write-in: With No Declared Candidates	✓		
Write-in: Identification of write-ins for resolution at central count		✓	
<i>Primary Presidential Delegation Nominations & Slates: (vol. 1. sect. 2.2.8.2)</i>			
Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	✓		
Slate & Group Voting: one selection votes the slate.	✓		
<i>Ballot Rotation: (vol. 1. sect. 2.2.8.2)</i>			
Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	✓		
<i>Straight Party Voting: (vol. 1. sect. 2.2.8.2)</i>			
Straight Party: A single selection for partisan races in a general election	✓		
Straight Party: Vote for each candidate individually	✓		
Straight Party: Modify straight party selections with crossover votes	✓		
Straight Party: A race without a candidate for one party	✓		
Straight Party: “N of M race (where “N”>1)	✓		
Straight Party: Excludes a partisan contest from the straight party selection.	✓		
<i>Cross-Party Endorsement: (vol. 1. sect. 2.2.8.2)</i>			
Cross party endorsements, multiple parties endorse one candidate.	✓		
<i>Split Precincts: (vol. 1. sect. 2.2.8.2)</i>			
Split Precincts: Multiple ballot styles	✓		
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	✓		
Split Precincts: DRE matches voter to all applicable races.	✓		
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	✓		Precinct Level Only
<i>Vote N of M: (vol. 1. sect. 2.2.8.2)</i>			
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	✓		
Vote for N of M: Invalidates all candidates in an overvote (paper)	✓		
<i>Recall Issues, with options: (vol. 1. sect. 2.2.8.2)</i>			
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	✓		
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	✓		
Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2 nd contest.)	✓		

Voting Variations Functionality & Languages Vol. 1 Sect 2.2.8.2 ,2.3.1.3.1.a, 2.4.3.3, 3.2.5.1.2, 3,2,5,1,3 4.4.4, & 10	Sup- ported	Unsup- ported	Required description(s)
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes or No to vote in 2 nd contest)	✓		Overturned - US District Court 7/29/03: CA Election Code sect. 11383
<i>Cumulative Voting (vol. 1. sect. 2.2.8.2, 10)</i>			
Cumulative Voting: Voters are permitted to cast, as many votes as there are seats to be filled for one or more candidates. Voters are not limited to giving only one vote to a candidate. Instead, they can put multiple votes on one or more candidate.		✓	
<i>Ranked Order Voting (vol. 1. sect. 2.2.8.2, 10)</i>			
Ranked Order Voting: Voters rank candidates in a contest in order of choice. A candidate receiving a majority of the first choice votes wins. If no candidate receives a majority of first choice votes, the last place candidate is deleted, each ballot cast for the deleted candidate counts for the second choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote.		✓	
Ranked Order Voting: Voters can write in a ranked vote.		✓	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated		✓	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.		✓	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.		✓	
Ranked Order Voting: The total number of votes for two or more candidates with the least votes is less than the votes of the candidate with the next highest number of votes, the candidates with the least votes are eliminated simultaneously and their votes transferred to the next-ranked continuing candidate.		✓	
<i>Provisional or Challenged Ballots (vol. 1. sect. 2.2.8.2, 10)</i>			
Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in the central count.	✓		
Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the central count.	✓		
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	✓		
<i>Overvotes (vol. 1. sect. 4.4.4, 10)</i>			<i>Must support for specific type of voting system</i>
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	✓		
Overvotes: DRE: Prevented from or requires correction of overvoting.	✓		
Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	✓		Count as “overvote”

Voting Variations Functionality & Languages Vol. 1 Sect 2.2.8.2 ,2.3.1.3.1.a, 2.4.3.3, 3.2.5.1.2, 3,2,5,1,3 4.4.4, & 10	Sup- ported	Unsup- ported	Required description(s)
Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.		✓	We cannot enter absentee ballots on the TS units. We handle absentee ballots using AVOS.
<i>Undervotes (vol. 1. sect. 4.4.4)</i>			<i>Must support</i>
Undervotes: System counts undervotes cast for accounting purposes	✓		
<i>Blank Ballots (vol. 1. sect. 2.4.3.3, 3.2.5.1.2, 3.2.5.1.3, & 4.4.4)</i>			
Totally Blank Ballots: Any blank ballot alert is tested.	✓		
Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	✓		
Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	✓		
<i>Display/Printing Multi-Lingual Ballots (vol. 1. sect. 2.3.1.3.1.a)</i>			<i>Must support one</i> <input checked="" type="checkbox"/>
Spanish	✓		
Alaska Native (Other Group specified)		✓	Optionally created per customer.
Aleut		✓	
Athabascan		✓	
Eskimo		✓	
Native (Other Group Specified)		✓	
Chinese	✓		
Filipino	✓		
Japanese	✓		
Korean	✓		
Vietnamese	✓		
<i>Demonstrates the voting system capability to handle the designated language groups. (vol. 1. sect. 2.3.1.3.1.a)</i>			
Default language (English),	✓		
Secondary language using a Western European font		✓	
Ideographic language (such as Chinese or Korean),	✓		
Non-written languages requiring audio support	✓		Audio with any other written language such as English.

5 Certification Test Results Summary

5.1 Source Code Review Summary

SysTest Labs has reviewed the Premier software source code for Assure 1.2 voting system in order to determine the source code's compliance with The FEC VSS for source code according to the FEC VSS April 2002, *Volume 1 Section 4, 8 and Volume 2 Section 2.2.5.2*, as well as for compliance with Premier's internally developed coding standards, as referenced in Section 4.4 of this document. All results of the source code review were documented in Excel spreadsheets. The source code that was delivered to SysTest Labs was in the form of C/C++, C# and VB.net.

The review was conducted for:

- **Software Integrity:** The module contains no self-modifying code. Software remains unchanged and retains its integrity. The module has defined array dimensions, which are positive constant integers (Pointer variables, dynamic memory allocation and management are not applicable to Visual Basic).
- **Modularity:** The module has a specific testable function, performs a single function, is uniquely named, follows a standard format, has a single entry point, has a single exit point (or deviates in an acceptable manner), has error handling; and acceptable module size.
- **Control Constructs:** Logic flow utilizes standard constructs of the development language used; constructs are used consistently throughout the code; logic structure is not overly complex, and acceptable use of error handlers.
- **Naming Conventions:** Variable and Function names that clearly define the purpose of the variable or function. Use of standard notation for variables by type. Use of names that are unique for both global and local variables. Use of names that are unique for functions (except where it deviates in an accepted manner).
- **Coding Conventions:** Use of a standard methodology for the construction of a code module. This includes uniform calling sequences, parameter validation, a single executable statement per line, and status or error messages.
- **Comments Conventions:** Comment Header blocks for the module / function follows a standard format in its layout and content. In code comments are clearly delineated and readable.

Attachments C and D1 detail specific information on the source code review. This information was submitted to Premier for their review and resolution, if necessary, during the course of the review.

Evaluation of Source Code

The source code was reviewed for compliance per the guidelines defined in FEC VSS 2002 *Volume 2, Section 5.4*. Overall, the source code was written adequately in terms of the FEC VSS April 2002. The code is generally modular and there is sufficient error handling. Readability is good and supports maintainability.

The reviewer's assessment is based on the following observations:

- **Software Integrity:**
 - There were no unbounded arrays. This follows the April 2002 FEC VSS requirements for software integrity.
 - No instances of self-modifying or dynamically loaded code were observed.
- **Modularity:**
 - The code is modular and self-contained.
 - Modules perform only the specified functionality.
 - The requirement of single entry and exit points has been complied with.
 - Modules are small enough to facilitate ease of reading and understanding.
- **Control Constructs:**
 - Control Constructs used are in accordance with those allowed by the VSS.
 - Most loop control constructs have been appropriately chosen for the logical tasks to be accomplished.
 - Modules have fewer than 6 levels of indented scope.
 - Array boundaries are checked.
- **Naming Conventions:**
 - Function and variable names are in accordance with the requirements of the VSS.
 - Names differed by more than a single character and have been chosen as to enhance the readability of the code.
 - There were no instances of language keywords being used as a name for procedures or variables.
- **Coding Conventions:**
 - Coding conventions employed are in compliance with the requirements of the VSS.
 - Variance: Premier's internal standards for line lengths, 110 characters per line, were accepted during the source code review.
 - Code was well structured.

- **Comments:**

- Module headers are in compliance with the requirements of the VSS.
- In-line comments are sufficient in number and placement to facilitate a good understanding of the code.
- Variables have comments at the point of declaration.

On the Application level, source code was evaluated to verify that no more than 50% of the modules exceed 60 lines, no more than 5% exceed 120 lines, and none exceed 240 lines without justification.

Functions/modules were within the FEC VSS tolerances, as described below:

- 45% of the modules had fewer than 60 lines of code;
- No more than 50% of the modules had between 61 and 120 lines of code;
- No more than 5% of the modules had between 121 and 240 lines of code; and
- 0% of the modules had more than 240 lines of code.

5.2 Technical Data Package Review Summary

SysTest Labs has reviewed the Premier TDP for the Assure 1.2 voting system for compliance with the FEC VSS April 2002 according to *Volume 2 Section 2*. The specific documents are referenced in Section 4.4 of this document.

The review was conducted for the required content and format of the:

- **System Overview:** System description and performance.
- **System Functionality Description:** System functional processing capabilities, encompassing capabilities required by the Standards and any additional capabilities provided by the system, including a simple description of each capability.
- **System Hardware Specification:** System Hardware Characteristics, Design and Construction
- **Software Design and Specification:** Purpose and scope, applicable documents, software overview, software standards and conventions, software operating environment, software functional specification, programming specifications, system database, interfaces and appendices.
- **System Security Specification:** Access control policy and measures, equipment and data security, software installation, telecommunications and data transmission security, elements of an effective security program.
- **System Test and Verification Specifications:** Development and certification test specifications.
- **System Operations Procedures:** Operation environment, system installation and test specifications, operational features, operating procedures, operations support.
- **System Maintenance Procedures:** Preventative and corrective maintenance procedures, maintenance equipment, facilities and support.
- **Personnel Deployment and Training Requirements**
- **Configuration Management:** Configuration management policy, configuration identification, procedures for baseline, promotion, demotion and configuration control, release process, configuration audits and management resources.
- **Quality Assurance Program:** Quality assurance policy, parts and materials special testing and examination, quality conformance inspections.
- **System Change Notes:** This is an initial certification, as such there are no system change notes to be reviewed.

Evaluation of TDP

The Technical Data Package for Premier Assure 1.2 voting system was found to be in compliance with the relevant requirements of the FEC 2002 VSS. Attachment B details specific information on the TDP review. This information was submitted to Premier for their review during the course of the project.

5.3 Functional Test Summary

SysTest Labs executed the following Functional Test scripts for Premier Assure 1.2 voting system:

- Operational Status Check
- Readiness Test
- Sampling of Premier’s Assure 1.2 test cases
- SysTest Labs’ Security test case
- SysTest Labs’ Telecommunications test case
- SysTest Labs’ System Accuracy test case
- Volume test case

Evaluation of Functional Testing

Premier Assure 1.2 voting system passed all Functional testing. Any critical issues found were reported, resolved and re-tested. Appendix A – Test Results details specific information on the functional tests.

5.4 System Level Test Summary

SysTest Labs executed all System Level tests on each of the system configurations, as identified in the description field of each test case. The testing consisted of the following standard system level tests customized for each system configuration:

- SysTest Labs’ GEN01 test case
- SysTest Labs’ GEN02 test case
- SysTest Labs’ GEN03 test case
- SysTest Labs’ PRI 01 test case
- SysTest Labs’ PRI02 test case
- SysTest Labs’ PRI 03 test case

This incorporated end-to-end election scenarios testing the functionality supported by Premier, as identified in appendix A – Test Results.

Evaluation of System Level Testing

Premier Assure 1.2 voting system passed all System level testing. Any critical issues found were reported, resolved and re-tested. Appendix A – Test Results details specific information on the system level tests.

5.5 Environmental Hardware Test Summary

Based upon an examination of the Premier Assure 1.2 voting system equipment listed in the hardware submitted for testing listed in Table 4 – Matrix of Software and Firmware, as well as Premier’s Hardware Specification, SysTest Labs concluded that the hardware, listed and marked as (COTS) in table 3, was COTS (Commercial Off the Shelf). As such it is not subject to Environmental Hardware Testing.

Test reports from previous hardware testing performed by accredited NVLAP or A2LA laboratories were analyzed to determine if the results would be accepted for certification. Based on criteria, as defined in the Assure 1.2 test plan, and listed in the “Hardware Environmental Testing Assessment” below, the following devices were determined to be exempted from additional Environmental

Hardware testing:

- AccuVote-OS CC,
- AccuVote-OS PC,
- AccuVote-TSX,
- AccuVote-TS R6,
- DRS PhotoScribe 900 iM2,

As well as the ATS VAT

- A100,
- A200 and
- A300.

SysTest Labs executed Environmental Hardware testing on the non-COTS hardware AccuVote-OSX. The testing consisted of:

- Hardware environmental (non-operational tests);
- EMC tests (operational tests);
- Safety evaluation to UL60950-1;

Maintainability testing and Accessibility and Human Engineering Evaluation testing was performed at SysTest Labs in Denver.

The AccuVote OSX successfully passed each of the environmental tests to which the equipment was subjected. Please see the pertinent test reports as outlined in attachment H1.

Other Labs Performing Hardware Testing

SysTest Labs is responsible for all core voting system tests as identified in NIST NVLAP Handbook 150-22 (2005). The labs listed below performed non-core hardware testing for this certification test campaign.

- Environmental Testing was done at Advanced Product Testing (APT) Laboratories in Longmont, Colorado
- Emissions Testing was performed at Criterion Laboratories in Rollinsville, Colorado
- Safety Testing was performed at Compliance Integrity Services (CIS) Laboratories in Longmont, Colorado

Hardware Environmental Testing Assessment

The acceptance and use of previous hardware environmental testing and certification performed by accredited NVLAP or A2LA facilities is based on the following criteria:

- The configuration of the equipment being presented for testing is substantially identical to the equipment that was previously tested and certified and that all changes made to the hardware configuration of the equipment being presented for testing, from the hardware that was previously tested and certified were confirmed to be de minimis changes.
- The standards and associated requirements under which the previous testing and certification was performed are equal to or more demanding than the current requirements.
- There have been no significant changes to the test methods.

The labs that completed the hardware environmental testing and certification meets the EAC's requirements for accreditation as defined in NIST Handbook 150-22: 2005 and NIST Handbook 150-22: 2007.

5.6 Accuracy Test Summary

Assure 1.2 components subjected to the Accuracy Test include the Premier

- AccuVote-OS CC
- AccuVote-OS PC
- AccuVote-OSX
- AccuVote-TSX
- AccuVote-TS R6
- DRS PhotoScribe 960

As well as the ATS VAT

- A100
- A200
- A300

Note that the DRS PhotoScribe PS900 IM2 and the PhotoScribe PS960 have identical scanning capabilities and use the same PCS software; they differ mainly in computer disk capacity. SysTest selected one of models, the PS960, for the Accuracy Test. Both models did undergo all other functional testing.

GEMS software was used in the Accuracy testing for the creation of the election definition, as well as the tallying of the election results.

Evaluation of Accuracy Testing

Each component of the Assure 1.2 voting system, as listed above, successfully completed component level accuracy testing. Additionally, at a system level consideration, the Assure 1.2 voting system successfully completed tallying the election results of each component of the system.

All issues found were reported, resolved and re-tested prior to the completion of accuracy testing. Appendix A – Test Results details specific information on the accuracy test.

5.7 Security Test Summary

SysTest Labs executed security tests on all software and hardware components of the Premier Assure 1.2 voting system. The tests were designed to verify Assure 1.2 meets all pertinent security requirements, as listed in the FEC VSS 2002 guidelines.

Documentation was reviewed to validate the Assure 1.2 system included policies, procedures and recommendations for setup, access, maintenance, and other measures

Source code was examined to verify documented security measures such as encryption and hashing are in compliance with the VSS guidelines. Security concerns identified during the normal source code review process were examined by a security specialist for potential addition test cases.

System tests were conducted on the voting systems in a simulated voting environment to insure proper security measures were in place

Hardware security compliance involved examination of physical access control measures on the devices in order to validate that access is restricted to proper personnel through the use of locks or other protection devices and to insure voter and ballot data are protected from unauthorized physical access.

Role (Software Access Control) tests were conducted to insure passwords and/or other software security measures were in place to prevent unauthorized personnel or voters from accessing parts of the system or performing activities to which they should not be able to obtain access.

Tests were conducted to insure voting systems were protected from software threats such as viruses, Trojan Horses and root kits. Additionally, SysTest Labs verified that system-hardening measures provided by the vendor were adequate.

Telecommunication specific security tests are located in the telecommunications section of this document.

Evaluation of Security Testing

All components of the Assure 1.2 voting system passed relevant security testing. Any critical issues found were reported, resolved and re-tested. Appendix A – Test Results details specific information on the security tests.

5.8 Telecommunications Test Summary

SysTest Labs executed telecommunications tests on all software and hardware components of the Premier Assure 1.2 voting system that incorporate either modem or IP connections. With the components configured for transmission, data was sent and interrupted during transmission. After the interruption the components were tested to see if they responded in the correct way and the data was not lost (per the vendor documentation). Data was then retransmitted successfully and verified. The error messages were also tested and verified. The tests were designed to verify Assure 1.2 meets all pertinent telecommunications requirements, as listed in the FEC VSS 2002 guidelines.

Evaluation of Telecommunications Testing

All components of the Assure 1.2 voting system passed relevant telecommunications testing. Any critical issues found were reported, resolved and re-tested. Appendix A – Test Results details specific information on the telecommunications tests.

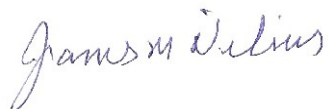
5.9 Deficiencies

SysTest Labs has determined that there are no remaining unresolved deficiencies against the Premier Assure 1.2 voting system, as pertains to the FEC VSS 2002 guidelines.

6 Recommendations

SysTest Labs has successfully completed the testing of Premier's Assure 1.2 voting system. It has been determined that Assure 1.2 successfully met the required criteria of the Federal Election Commission Voting System Standards April 2002.

Based on testing scope and results, as detailed in this report, it is SysTest Labs' recommendation that the EAC committee grant certification of Premier's Assure 1.2 voting system.



James M. Nilius
Vice President of Compliance Services
SysTest Labs
February 22, 2008

7 Appendix A – Test Results

SysTest Labs executed all System and Functional Level tests on each of the system configurations identified in VSS Volumes 1 and 2. This testing consisted of a set of standard system and functional level regression tests customized for each system configuration. This incorporated end-to-end election scenarios testing the functionality supported by the vendor.

This effort also included documentation review of the Technical Data Package requirements, source code review, and testing of the vendor's Voting System according to FEC VSS 2002 requirements. Testing consisted of the development of a test plan, managing system configurations, executing a subset of functional test cases based on vendor test requirements, executing a sampling of vendor test cases, executing readiness tests, performing system level tests prepared by SysTest Labs and analysis of results. The review was performed at SysTest Labs' Denver, Colorado facility.

7.1 Sampling of Vendor Testing Results

Test Detail	Test Methodology
Test Case Name	Sampling of Vendor Testing Results
Scope	A sampling of vendor test cases were run and validated against The 2002 Voting System Standards (VSS) guidelines. SysTest Labs executed 5 sample test cases provided by Vendor via TDP.
Objective	To validate that the vendor's test case results are repeatable.
Results	PASSED
Findings	<u>Functional Testing Discrepancy Rpt AVOS CC</u> <ul style="list-style-type: none"> #1, Functional, Accufeed will not feed ballots #2, Doc, Batch Start card is not rejected
Sample Test Cases	See the following vendor TDPs for test case details. TP_AVOS-CC version 3.pdf <ul style="list-style-type: none"> #7 – Using a Batch Header Card GEMS General Election Test Plan.pdf <ul style="list-style-type: none"> #1 - Creating a new Database #22 – Voting on the AccuVote-TS #25 – Processing Ballots in Central Count #27 - Audit

7.2 System Level Test Results

Test Detail	Test Methodology
Test Case Name	GEN01
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a General Election.
Results	PASSED
Findings	<p><u>Functional Testing Discrepancy Rpt AVOS HW</u></p> <ul style="list-style-type: none"> #1, Functional, Batteries are not functioning
Variables: Voting Variations	<ul style="list-style-type: none"> Ranked Order Voting (Unsupported by GEMS) Four Districts and Two Precincts: Split Precincts (three splits per precinct) No Rotation Non-Partisan contest: Vote for 1 of N Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins Non-Partisan contest: Multi-member board (N of M) Non-Partisan contest: Proposition/Question Partisan contest: Vote for 1 of N Partisan contest: "Vote for 1" race with a single candidate and a write-in Partisan contest: "Vote for 1" race with no declared candidates and write-ins Partisan contest: Multi-member board (N of M) Partisan contest, one party has no candidates Slate & Group voting: one selection votes the slate Recall Type A - Simple Yes/No question Recall Type B - Retain is first option, followed by Replacement options for second or more

Test Detail	Test Methodology
Test Case Name	GEN01
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> • GEMS is the election management system application that runs on a PC using Windows XP Professional, 2000 Server, or 2003 Server. GEMS is the central election definition, ballot definition, vote tabulation, and reporting software for the Assure 1.2 system. GEMS also exports data to AIMS. • AccuVote OS-PC is an optical scanning device that has its own firmware and uses ABasic for reporting; it is intended for use in a single precinct. • AccuVote OS-CC is an optical scanning device that has its own firmware and uses ABasic for reporting; it is intended for use as a central counting scanner, and is able to track election results for multiple precincts or ballot styles. The AccuVote OS-CC also uses the optional AccuFeed Model A multi-ballot feeder.
Standards Documents	Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)

Test Detail	Test Methodology
Test Case Name	GEN01
Pre-vote: Preparation – Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)

Test Detail	Test Methodology
Test Case Name	GEN01
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)

Test Detail	Test Methodology
Test Case Name	GEN01
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • Ranked Order Voting (Unsupported by GEMS) • Four Districts and Two Precincts: Split Precincts (three splits per precinct) • No Rotation • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Non-Partisan contest: Proposition/Question • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with a single candidate and a write-in • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Slate & Group voting: one selection votes the slate • Recall Type A - Simple Yes/No question • Recall Type B - Retain is first option, followed by Replacement options for second or more
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events
Post-Vote: Central Count	Capture, document, and verify all counts

Test Detail	Test Methodology
Test Case Name	GEN01
Post-Vote: Security	<p>Post-Vote - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Post-Vote: System Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a General Election: Straight Party
Results	PASSED
Findings	<p><u>Functional Testing Discrepancy Rpt Ballot Station</u></p> <ul style="list-style-type: none"> • #5, Functional, BallotStation is not accepting voter access cards • #6, Functional, TSX looping with use of AVPM II • #7, Doc, Housing door does not fit over the canister <p><u>Functional Testing Discrepancy Rpt GEMS</u></p> <ul style="list-style-type: none"> • #4, Doc, Provisional votes flow from the BallotStations up to GEMS is not clear <p><u>Functional Testing Discrepancy Rpt VCE</u></p> <ul style="list-style-type: none"> • #8, Doc, User's Guide does not list the limitations of the VCE • #9, Doc, VCE does NOT save loaded data unless POSITION 1 is loaded • #10, Doc, Statement in #1 is incorrect and may need to be removed <p><u>Functional Testing Discrepancy Rpt Ballot Station</u></p> <ul style="list-style-type: none"> • #1, Doc, Section 3.1 references out of date • #2, Functional, The AVPM I and II print modules are not operating <p><u>Functional Testing Discrepancy Rpt AVTSX</u></p> <ul style="list-style-type: none"> • #1, Functional, Ballot Station freezes • #2, Doc, Doc does not provide information on Recall/Retain type C • #3, Doc, Installing and Removing the OSAA • #4, Functional, Build failed, "failed to verify file"

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
Variables: Voting Variations	<ul style="list-style-type: none"> • This is a two-page ballot election per voter • Four Districts, Seven Precincts • No Split Precincts- Ballot Rotation by Precinct • Cumulative voting ***UNSUPPORTED BY GEMS • Straight party (multi-member board) • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Non-Partisan contest: Proposition/Question • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with a single candidate and a write-in • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Partisan contest: Cross over to another partisan ballot • Slate & Group voting: one selection votes the slate • Recall Type A - Simple Yes/No question • Recall Type B - Retain is first option, followed by Replacement options for second or more

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> • GEMS – See GEN01 • BallotStation firmware is used for the Premier touch screen voting machines to provide the functions necessary to present the correct ballot style, accumulate vote data, accommodate disabled voters, and transfer election and voting data from and to GEMS. • AccuVote TSX is the accessible touch screen voting unit which runs the BallotStation firmware application as described above, and it uses the WinCE 410 operating system and BootLoader firmware. • AVPM is an optional printer module that attaches to the AccuVote TSX and provides a printed voting record on paper that may be viewed by the voter. The AVPM is driven by AVPM firmware installed on the TSX units. • OSAA is an adapter that fits into PCMCIA card slot of the touch screen voting machines, and it accommodates the memory cards used to transfer results from the AccuVote OS units to touch screen machine. This adapter has no software or firmware and does not store information. • KeyCard Tool is used to activate supervisor and administrator cards and security keys for the touch screen machines. The KeyCard Tool software application runs on a PC with Windows XP Professional. • EMP is used to transfer election and voting data between up to six memory cards and GEMS. The EMP unit is an external SCSI chassis connected to a PC running Windows XP Professional and the EMP software application. • ExpressPoll 2000, 4000, 5000 run the ExpressPoll CardWriter firmware. These units are used to retrieve voter registration data and activate voter access cards for the touch screen voting machines. These units will be tested on a standalone basis, i.e. without active connection other devices.
Standards Documents	<p>Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps</p>
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)
Pre-vote: Ballot Preparation Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • This is a two-page ballot election per voter • Four Districts, Seven Precincts • No Split Precincts- Ballot Rotation by Precinct • Cumulative voting ***UNSUPPORTED BY GEMS • Straight party (multi-member board) • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Non-Partisan contest: Proposition/Question • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with a single candidate and a write-in • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Partisan contest: Cross over to another partisan ballot

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
	<ul style="list-style-type: none"> • Slate & Group voting: one selection votes the slate • Recall Type A - Simple Yes/No question • Recall Type B - Retain is first option, followed by Replacement options for second or more
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	<p>Post-Vote - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Post-Vote: System Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope

Test Detail	Test Methodology
Test Case Name	GEN02 (Straight Party)
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a General Election: Multi-Language & Accessibility
Results	<p>PASSED</p> <ul style="list-style-type: none"> • Informational – 1 open issue
Findings	<p>When testing UAID features on the TSX, it was found that the sip and puff hardware was effective however it required substantial effort to cast an entire ballot. Additionally, static sound emitted from the headphones.</p> <p>When testing UAID features on the VAT, the foot pedal device was effective but cumbersome because combinations of the right and left pedals are required for selection and movement.</p> <p><u>Functional Testing Discrepancy Rpt ATS AIMS</u></p> <ul style="list-style-type: none"> • #2, Doc, Section 8.3: Adding and Editing an Audio file • #3, Doc, Section 14.4: Exporting Required Translations • #4, Doc, Section 5.3: Importing Election Data into AIMS • #5, Doc, Section 15.1: Importing Text Translations • #6, Doc, Section 4.1: Getting Started • #7, Doc, Section 4.2: Logging On • #8, Info, Section 5.1: Setting Up a New Election in AIMS • #9, Info, Section 5.1: Setting Up a New Election in AIMS • #10, Doc, Section 5.1: Setting Up a New Election in AIMS • #11, Doc, Section 5.3.1: Importing Diebold GEMS Data • #12, Doc, Section 12.8: Languages • #13, Doc, Section 12.8: Languages <p><u>Functional Testing Discrepancy Rpt ATS VAT</u></p> <ul style="list-style-type: none"> • #1, Doc, Section 6.1: Removing the Ink Cartridge • #2, Doc, Section 6.5.3: Setting the Admin Password • #3, Doc, Section 6.5.1: Printing the Operation Log

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
	<ul style="list-style-type: none"> • #4, Doc, Section 1.5: Assisting the Voter who uses an AT Device • #5, Functional, Audio script does not match text script • #6, Functional, Ballot title not voiced on 2nd race screen • #7, Doc, Section 1.3: Using the AutoMARK VAT with an AT Device • #8, Doc, instructions/procedures are not provided • #9, Doc, Flash Memory Card the Pin # is not provided in the doc • #10, Doc, Japanese text for 'Write-in' different than what was input • #11, Functional, Both Chinese languages have the same text on select button <p><u>Functional Testing Discrepancy Rpt Ballot Station</u></p> <ul style="list-style-type: none"> • #3, Functional, Voting Instructions are not translated • #4, Functional, Audio is not provided when voting with a UAID device (Not Supported) • #8, Doc, Issues with foreign fonts • #9, Doc, Section 4 - The listed fonts do not cover all Vietnamese characters • #10, Functional, Cannot select the Contrast or Large Text buttons with the Keypad on the R6 • #11, Functional, No visual cue for every error-type audio cue • #12, Doc, Section 12.1.3 of Appendix D is incorrect • #13, Functional, 6 and the 4 keys on the keypad do not function as described • #14, Informational, dB levels of 113-115 were consistently measured. • #15, Functional, A tenth language is not selectable via the keypad device <p><u>Functional Testing Discrepancy Rpt GEMS</u></p> <ul style="list-style-type: none"> • #2, Functional, Report was not found to exist
Variables: Voting Variations	<ul style="list-style-type: none"> • Accessibility: Privacy, secrecy, and integrity demands of the FEC VSS (V1:2.2.7) • Accessibility: Common standards - reach, obstruction, protrusion, operable controls, ADA standards (V1:2.2.7.1) • Accessibility: DRE standards - Audio, headsets, FCC Part 68, ANSI C63.19-2001 Category 4, Settings (contrast, color, size, volume), touch screen, sound cues, biometrics, dexterity (V1:2.2.7.2) • One District, One Precinct • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M)

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
	<ul style="list-style-type: none"> • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with a single candidate and a write-in • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Non-Partisan contest: Proposition/Question • Slate & Group voting: one selection votes the slate • Multi-language ballots. Languages being tested: <ul style="list-style-type: none"> ○ English (Default), Chinese (using traditional form), Filipino/Tagalog, French, Haitian Creole, Japanese, Korean, Spanish, Vietnamese • Audio Ballots • Straight Party by contest, if supported (City Council)
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> • GEMS – See GEN01 • AIMS runs on a PC with Windows XP Professional and is used to import election data from GEMS and then transfer the election (i.e. ballot style) data to Compact Flash (CF) cards for use in the VAT units. • VAT A100/A200/A300 – Voter Assist Terminals are accessible touch screen ballot marking devices. All three listed models are tested, and all three use the same VAT firmware and WinCE 5.00.17 (COTS) operating system. • BallotStation – See GEN02 • AccuVote TSX – See GEN02 • AccuVote TS-R6 is an accessible touch screen voting machine running the BallotStation application, WinCE 300 operating system, and BootLoader firmware. • KeyCard Tool – See GEN02
Standards Documents	<p>Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps</p>

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)
Pre-vote: System Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • Accessibility: Privacy, secrecy, and integrity demands of the FEC VSS (V1:2.2.7) • Accessibility: Common standards - reach, obstruction, protrusion, operable controls, ADA standards (V1:2.2.7.1) • Accessibility: DRE standards - Audio, headsets, FCC Part 68, ANSI C63.19-2001 Category 4, Settings (contrast, color, size, volume), touch screen, sound cues, biometrics, dexterity (V1:2.2.7.2)

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
	<ul style="list-style-type: none"> • One District, One Precinct • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with a single candidate and a write-in • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Non-Partisan contest: Proposition/Question • Slate & Group voting: one selection votes the slate • Multi-language ballots. Languages being tested: <ul style="list-style-type: none"> ○ English (Default), Chinese (using traditional form), Filipino/Tagalog, French, Haitian Creole, Japanese, Korean, Spanish, Vietnamese • Audio Ballots • Straight Party by contest, if supported (City Council)
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	Post-Vote - Security: <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup

Test Detail	Test Methodology
Test Case Name	GEN03 (Multi-Language & Accessibility)
	<p>of additional hardware or software not covered above</p> <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Post-Vote: System Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	PRI01 (Open Primary)
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a Primary Election: Open Primary
Results	PASSED
Findings	<p><u>Functional Testing Discrepancy Rpt ASM</u></p> <ul style="list-style-type: none"> #1, Functional, Error message when attempting to connect to Assure Security Service Host <p><u>Functional Testing Discrepancy Rpt ATS AIMS</u></p> <ul style="list-style-type: none"> #1, Doc, Missing information in the documentation on how to create the MDB file <p><u>Functional Testing Discrepancy Rpt AVOSX</u></p> <ul style="list-style-type: none"> #1, Functional, OSX unit allowed a blank ballot w/no message #2, Doc, Document does not contain enough info to resolve the errors #3, Functional, OSX unit failed when attempting to download via modem <p><u>Functional Testing Discrepancy Rpt PCS</u></p> <ul style="list-style-type: none"> #1, Functional, Central Scan application failed to open the system audit log #2, Functional, Error can't connect to the security service host #3, Doc, (discrepancy is not valid) #4, Functional, users and roles that were assigned in the Access Control window are lost #5, Functional, documentation does not specify how the user is notified when the Vote Center is finished loading #6, Functional, Users and Rolls lost that were assigned in the Access Control window #7, Functional, Messages block user from being able to run PCS #8, Doc, Unable to use "Next card" and "Previous card" buttons #9, Functional, Message – "workspace could not be opened" <p><u>Functional Testing Discrepancy Rpt VCE</u></p> <ul style="list-style-type: none"> #1, Doc, VCE requires a commercial off the shelf (COTS), #2, Doc, Voter Card Encoder does not have an ENTER button #3, Doc, Acceptance Test do not match the steps for encoding a voter access card #4, Doc, Prompts stated in the user's guide match do not match VCE

Test Detail	Test Methodology
Test Case Name	PRI01 (Open Primary)
	<ul style="list-style-type: none"> • #5, Doc, User's guide does not explain what a master voter access card is • #6, Doc, User's guide does not provide clear and detailed steps on how to overwrite a ballot key • #7, Doc, No explanation of how to create a master voter access card
Variables: Voting Variations	<ul style="list-style-type: none"> • One District, One Precinct • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Primary Presidential Nominations: List only the nominees, not the delegates
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> • GEMS – See GEN01 • AIMS – See GEN03 • VAT A100/A200/A300 – See GEN03 • PCS 900/960 is a high-speed ballot scanning device which uses PCS software running on an integrated PC with Windows XP Professional • AccuVote OSX is an optical scanner which uses BootLoader, ABasic, WinCE 500, and its own OSX firmware.
Standards Documents	<p>Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps</p>
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list

Test Detail	Test Methodology
Test Case Name	PRI01 (Open Primary)
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)
Pre-vote: System Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)

Test Detail	Test Methodology
Test Case Name	PRI01 (Open Primary)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • One District, One Precinct • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Primary Presidential Nominations: List only the nominees, not the delegates
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events

Test Detail	Test Methodology
Test Case Name	PRI01 (Open Primary)
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	Post-Vote - Security: <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above Please also see the Documentation section of the Security Test Case within Appendix A.
Post-Vote: System Audit	Produce and verify available system reports
Results are Observed	Review the outcome of the test(s) against the expected result(s): <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	PRI02 (Closed Primary)
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a Primary Election: Closed Primary
Results	PASSED
Findings	<u>Functional Testing Discrepancy Rpt VCPprogrammer</u> <ul style="list-style-type: none"> #1, Functional, GEMSVoterCardData.txt file disappears
Variables: Voting Variations	<ul style="list-style-type: none"> Five Districts, Seven Precincts No Rotation Non-Partisan contest: Vote for 1 of N Partisan contest: Vote for 1 of N Partisan contest: Cross over to another partisan ballot if no declared candidate Partisan contest: Multi-member board (N of M) Partisan contest, one party has no candidates Primary Presidential Delegates: a delegate slate, display of delegates with nominees Recall Type D
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> GEMS – See GEN01 BallotStation – See GEN02 AccuVote TS-R6 – See GEN03 KeyCard Tool – See GEN02 OSAA – See GEN02 VCPprogrammer the Voter Card Programmer is used to encode voter access cards for use with the touch screen voting machines. It runs on a PC with the Windows XP Professional operating system.
Standards Documents	Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps

Test Detail	Test Methodology
Test Case Name	PRI02 (Closed Primary)
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)
Pre-vote: System Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>

Test Detail	Test Methodology
Test Case Name	PRI02 (Closed Primary)
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)

Test Detail	Test Methodology
Test Case Name	PRI02 (Closed Primary)
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • Five Districts, Seven Precincts • No Rotation • Non-Partisan contest: Vote for 1 of N • Partisan contest: Vote for 1 of N • Partisan contest: Cross over to another partisan ballot if no declared candidate • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Primary Presidential Delegates: a delegate slate, display of delegates with nominees • Recall Type D
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	<p>Post-Vote - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Post-Vote: System Audit	Produce and verify available system reports

Test Detail	Test Methodology
Test Case Name	PRI02 (Closed Primary)
Results are Observed	Review the outcome of the test(s) against the expected result(s): <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	PRI03 (Blanket Open Primary)
Scope	A system level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality and performance. Testing includes accuracy, ballot format handling capability, reporting, and usability of the hardware, software and procedures in the entire voting system.
Objective	The object of this test case is to verify core functionality and performance by using Premier's manual(s) to create election ballots, vote, and tally, for a Primary Election: Blanket Open Primary
Results	PASSED
Findings	<p><u>Functional Testing Discrepancy Rpt GEMS</u></p> <ul style="list-style-type: none"> <li>• #3, Doc, GEMS documentation does not specify how to setup a Blanket Open Primary <p><u>Functional Testing Discrepancy Rpt VCProgrammer</u></p> <ul style="list-style-type: none"> <li>• #2, Functional, Exception error was encountered
Variables: Voting Variations	<ul style="list-style-type: none"> <li>• One District, One Precinct <li>• No Rotation <li>• Non-Partisan contest: Vote for 1 of N <li>• Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in <li>• Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins <li>• Non-Partisan contest: Multi-member board (N of M) <li>• Partisan contest: Vote for 1 of N <li>• Partisan contest: "Vote for 1" race with no declared candidates and write-ins <li>• Partisan contest: Multi-member board (N of M) <li>• Partisan contest, one party has no candidates <li>• Primary Presidential Nominations: List only the nominees, not the delegates

Test Detail	Test Methodology
Test Case Name	PRI03 (Blanket Open Primary)
A description of the voting system type and the operational environment	<ul style="list-style-type: none"> • GEMS – See GEN01 • BallotStation – See GEN02 • AccuVote TSX – See GEN02 • UAID is the Universal American Disabilities Association Interface Device, and it is tested for sip and puff and switch interfaces to the AccuVote TSX units. This interface device has no software or firmware and does not store information. • KeyCard Tool – See GEN02 • Voter Card Encoder is a pocket-sized device used for encoding voter access cards; it is pre-programmed with ballot identification information. Voter Card Encoder uses its own firmware.
Standards Documents	<p>Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps</p>
Pre-requisites and initialization of the test case	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Define election contests, candidates, issues etc. (V1:2.2.6) • Party affiliation is identified on the ballot • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Pre-vote: Ballot Preparation procedures verifications	<ul style="list-style-type: none"> • Installation and Election databases can be accurately/securely defined and formatted • A ballot (candidates and propositions) can be accurately/securely defined and formatted (V1:3.2.4.2) • A ballot can be accurately/securely programmed and installed into the vote card (V1:3.2.4.2.4, 3.2.4.2.5)

Test Detail	Test Methodology
Test Case Name	PRI03 (Blanket Open Primary)
Pre-vote: System Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)

Test Detail	Test Methodology
Test Case Name	PRI03 (Blanket Open Primary)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Maintain accurate and complete error and status messages (V1:2.2.5.2.2, 2.2.5.2.3, 3.2.1) • Accurately record cast ballots, including provisional (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • DRE shall record and retain redundant copies of the original ballot image (V1:2.2.2.2, 3.2.4.3.2, 3.2.4.3.3) • Ensure undervotes are counted as cast votes • All paper-based systems shall: Protect the secrecy of the vote throughout the process (V1:2.4.3.2.1, 3.2.4.1) • Separate accumulation of Undervotes and Paper Overvotes • Ensure Overvotes are counted on paper ballots and tally correctly • Maintain integrity of Vote and Audit data • Accurate Definition, Count, Reporting for Election Day, Absentee - paper and DRE, with the results tallied, excluding and including provisional ballots (V1:2.2.2.1, 3.2.8.2) • Write-in voting: Voting position identified for write-ins (V1:3.2.5.1.3) • Correctly tabulate (V1:2.2.8.1) • Provisional/Challenged ballots - Note vendor supported tabulation of these ballots at Central Count • Overvotes (V1:3.2.5.1.3) • Undervotes (V1:3.2.5.1.3) • Blank ballots (V1:3.2.5.1.3)
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • One District, One Precinct • No Rotation • Non-Partisan contest: Vote for 1 of N • Non-Partisan contest: "Vote for 1" race with a single candidate and a write-in • Non-Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Non-Partisan contest: Multi-member board (N of M) • Partisan contest: Vote for 1 of N • Partisan contest: "Vote for 1" race with no declared candidates and write-ins • Partisan contest: Multi-member board (N of M) • Partisan contest, one party has no candidates • Primary Presidential Nominations: List only the nominees, not the delegates
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events

Test Detail	Test Methodology
Test Case Name	PRI03 (Blanket Open Primary)
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	<p>Post-Vote - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Post-Vote: System Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

7.3 Functional Level Test Results

Test Detail	Test Methodology
Test Case Name	Readiness Test
Scope	A functional level test that uses The 2002 Voting System Standards (VSS) guidelines to validate Readiness throughout the entire voting system. (V1:3.4.1)
Objective	The object of this test case is to verify equipment and system readiness to ensure that the voting system functions properly, to confirm that the system equipment has been properly intergraded, and to obtain equipment status reports. (V1:3.4.1)
Results	PASSED
Findings	Functional Testing Discrepancy Rpt PCS <ul style="list-style-type: none"> • #6, Functional, 2.0.1 users guide is shown. The installed software is the 2.0.4
A listing of the applicable voting system machines	<ul style="list-style-type: none"> • AVOS-PC - AccuVote Optical Scan with Precinct Count • AVOS-CC - AccuVote Optical Scan with Central Count • AVOSX - AccuVote Optical Scan • AccuVote-TS - AccuVote Touch Screen • AccuVote-TSX - AccuVote Touch Screen • KCT - KeyCard Tool • VCE - Voter Card Encoder • VCP - VC Programmer • EMP - Election Media Processor • PCS - Premier Central Scan • GEMS - Global Election Management System
Standards Documents	Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps
Pre-requisites and initialization of the test case	This testing is to be executed on initial testing and each time the system is to be shut down and restarted.

Test Detail	Test Methodology
Test Case Name	Readiness Test
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report • Provide any additional supporting documentation as needed
System Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Readiness Testing Verification	<ul style="list-style-type: none"> • Voting machines or vote recording and data processing equipment, precinct count equipment, and central count equipment are properly configured for an election, and collect data that verifies equipment readiness • Obtain status and data reports from each set of equipment • Correct installation and interface of all system equipment • Hardware and software function correctly • Version verification

Test Detail	Test Methodology
Test Case Name	Readiness Test
Summary of Actions per Product	<p>AVOS-PC:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on • Verify that the unit displays Testing Passed • Verify that the correct firmware version is displayed • Verify that the TOT Ballots figure is the same as prior to turning the unit off. • If in pre-election mode, print a report and verify that the results are the same as prior to turning the unit off. <p>AVOS-CC:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on • Verify that the Correct firmware version is displayed • Verify that connecting network is displayed and then the IP address of the machine that the user was last Connected to is displayed" • Verify that the IP address of the machine is printed to tape • Verify that you can start a deck <p>AVOSX:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on • Verify that the system is initialized • Verify that the correct version of AVOSX firmware is displayed • Verify that the unit returns to the exact same state as it was in prior to turning the unit off. • Verify that TOT Ballot figures are the same as prior to turning the unit off. • If in pre-election mode, print a test results report and verify that the results are the same as prior to turning the unit off

Test Detail	Test Methodology
Test Case Name	Readiness Test
Summary of Actions per Product (cont.)	<p>AccuVote-TS & AccuVote-TSX:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on • Verify that the system is initialized • Verify that the Ballot Station version is displayed and is accurate • Verify that the system totals are the same as prior to turning the unit off. • Verify that the election is in the same state as prior to turning the unit off. • Print the audit report and verify that the report is accurate <p>KCT:</p> <ul style="list-style-type: none"> • Exit out of KCT and then re-open the application • Verify that you can still create/update cards <p>VCE:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on. • Verify that the correct firmware version is displayed • Verify that the encoder is in the same state as prior to turning it off. • Verify that the card created totals are accurate • Verify that each key that you had programmed still has the ballot stored on the card <p>VCP:</p> <ul style="list-style-type: none"> • Exit out of the application and then open it up again • Verify that all the ballots/report precinct combinations are still listed • Verify that the user is able to create a card. • Verify that the previously used challenge IDs are still in memory, meaning you can't create a challenged voter card with an id that you had used prior to exiting out of VCP

Test Detail	Test Methodology
Test Case Name	Readiness Test
Summary of Actions per Product (cont.)	<p>EMP:</p> <ul style="list-style-type: none"> • Exit out of the application and then open it up again • Verify that all the vote centers that were previously downloaded/uploaded still reflect the correct status • Verify that the information for all the log files has been preserved • Verify that the IP address of GEMS and the settings are the same as prior to exiting out of the application <p>PCS:</p> <ul style="list-style-type: none"> • Exit out of the application and then open it up again. • Login and open the workspace that you were working on • Ensure that the same run is active as was prior to exiting the application • Ensure that the Decks screen lists all the decks with the correct statuses • Ensure that all decks that were posted to GEMS still display a POSTED status • Ensure that the correct EID, version and copy # are displayed <p>GEMS:</p> <ul style="list-style-type: none"> • Turn the unit off and then back on (activate GEMS either from the Start menu or from the Desktop) • Verify that the installed GEMS software version has been certified for use in the appropriate jurisdiction • Verify the connection to the election database • Verify the connection to the voting device being downloaded to • Verify that the election database status is 'Set for election' <p>Refer to Table 4 - Required Hardware for additional information on each product.</p>
Readiness Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope

Test Detail	Test Methodology
Test Case Name	Readiness Test
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

Test Detail	Test Methodology
Test Case Name	Operational Status Check
Scope	SysTest Labs requires the vendor to provide a comprehensive end-to-end test case(s) that they supply to their customers, such as state election officials. The Vendor may provide SysTest Labs a comprehensive checklist of test case(s) for particular states' functionality. This test may be based on the vendor's certification configuration. SysTest Labs will perform the operational status check once upon acceptance of the equipment, and once after all other testing, prior to checkout. (V2:4.6.1.5)
Objective	The object of this test case is to verify that when all tests, inspections, repairs, and adjustments have been completed, normal operation can be verified by conducting an operational status check.
Results	PASSED
Findings	No issues detected during testing.
Standards Documents	Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps
Documentation of Test Data & Test Results	<ul style="list-style-type: none"> • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
Operational Status Check Verification	<p>During this process, all equipment will be operated in a manner and environmental conditions that simulate election use to verify the functional status of the system. Prior to the conduct of each of the environmental hardware non-operating tests, a supplemental test will be made to determine that the operational state of the equipment is within acceptable performance limits.</p> <p>The following procedures will be followed to verify the equipment status:</p> <ul style="list-style-type: none"> • Step 1: Arrange the system for normal operation. • Step 2: Turn on power, and allow the system to reach recommended operating temperature. • Step 3: Perform any servicing, and make any adjustments necessary, to achieve operational status. • Step 4: Operate the equipment in all modes, demonstrating all functions and features that would be used during election operations. • Step 5: Verify that all system functions have been correctly executed.

Test Detail	Test Methodology
Test Case Name	Operational Status Check
Readiness Audit	Produce and verify available system reports
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

7.4 Accuracy Test Results

Test Detail	Test Methodology
Test Case Name	Accuracy
Scope	A functional level test which uses The 2002 Voting System Standards (VSS) guidelines to validate the individual ballot positions in terms of a maximum error rate while processing a specified volume of data. (V2:4.7.1.1)
Objective	The object of this test is to verify that the voting system can accurately and reliably print ballots incorporating a minimum 1,549,703 ballot positions (including voted and non-voted positions) and that these ballots can be mechanically/electronically tabulated without error.
Results	<p>PASSED</p> <ul style="list-style-type: none"> • AccuVote OS PC (1.96.10) • Accuvote OS CC (2.0.13) • AccuVote TSX (4.7.2) • AccuVote R6 (4.7.2) • AccuVote OSX (1.0.3) • Premier Central Scan (2.0.5) <p>All components above used GEMS (1.20.2) software as part of the accuracy test</p> <ul style="list-style-type: none"> • ATS A100/200 VAT • ATS A300 VAT <p>Open:</p> <ul style="list-style-type: none"> • Informational – 1 issue
Findings	<p><u>Functional Testing Discrepancy Rpt VAT A300 Data Accuracy Test</u></p> <p>#1, Doc, Automark System Installation and Maintenance Guide procedures not adequate</p> <p>#2, HW, Unit inoperable; caused loss of data from the operations log</p> <p>#3, Doc, AutoMARK 3010 Poll Worker's Guide, no indication for message "Alert!"</p> <p>#4, Info, Changes in the total printed count in the operations log on the ATS VAT can be caused by abnormal shutdown</p>
Variables: Voting Variations	A ballot with the maximum number of supported parties and candidates.

Test Detail	Test Methodology
Test Case Name	Accuracy
<p>A description of the voting system type and the operational environment</p>	<ul style="list-style-type: none"> • AVOS-PC - AccuVote Optical Scan with Precinct Count • AVOS-CC - AccuVote Optical Scan with Central Count • AVOSX - AccuVote Optical Scan • AccuVote-TS - AccuVote Touch Screen • AccuVote-TSX - AccuVote Touch Screen • KCT - KeyCard Tool • VCE - Voter Card Encoder • VCP - VC Programmer • EMP - Election Media Processor • PCS - Premier Central Scan • GEMS - Global Election Management System
<p>Standards Documents</p>	<p>Voting System Standards 2002, vol. 1 Voting System Standards 2002, vol. 2 Specific standards are noted in following steps</p>
<p>Pre-requisites and initialization of the test case</p>	<ul style="list-style-type: none"> • Document the date and tester(s) • System, including the witnessed build, is installed and set up as defined in the user documentation • Defined election with maximum contests, candidates, issues etc. • Create a supervisory level access 'user' and 'password' • Testers are informed that the test environment must remain static, if not, no changes shall occur without documentation in the test record and the authorization of the project manager • Have a Ballot Counter (V1:2.2.9, 3.2.4.2.6) • Retrieve all supplies necessary for testing • Complete Readiness check list
<p>Documentation of Test Data & Test Results</p>	<ul style="list-style-type: none"> • Capture all voting steps in order to maintain repeatability of the test • Record election, ballot, and vote data fields on the corresponding tabs • Save all tabs for all iterations of the test case • Record results of test run by entering 'Accept/Reject' on the Test Results Matrix • Provide comments when observing deviations, discrepancies or notable observations • Log discrepancies on the Discrepancy Report
<p>Pre-vote: Ballot Preparation procedures verifications</p>	<p>Installation and Election databases can be accurately/securely defined and formatted</p>

Test Detail	Test Methodology
Test Case Name	Accuracy
Pre-vote: Preparation - Security	<p>System Preparation - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above. <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Testing and Poll Verification	<ul style="list-style-type: none"> • The election is correctly installed • Status and data reports are generated • Test data is separate from voting data without impact to the testing • Zero count report • A list of all ballot fields is created (V1:3.2.4.2.1) • No hardware/software failures • The voting device is ready to accept votes (V1:3.2.4.2.2, 3.2.4.3.1)
Pre-vote: Opening the Polls Verification	<ul style="list-style-type: none"> • Completed Readiness check list • Perform proper sequence of functions to open the polls • Identify any issues, failures, or unexpected results and their required corrective action(s)
Voting: Required functionality verifications	<ul style="list-style-type: none"> • Maintain accurate and complete audit records (V1:2.2.5.2.1, 3.2.7) • Accurately record cast ballots (V1:2.4.3, 3.2.3.1, 3.2.5.2, 3.2.6.2.2) • Validate the data brought into the system is accurately recorded and reported • Maintain integrity of Vote and Audit data • Correctly tabulate (V1:2.2.8.1)
Accuracy: Error Rate	<p>Maximum error rate is less than one in 10,000,000 ballot positions, with a maximum error rate of one in 500,000 ballot positions in the test process. Errors are from any source while testing a specific processing function and its related equipment. The error rate determines the accuracy test vote position processing volume:</p> <ul style="list-style-type: none"> • Reject: one error before counting 26,997 consecutive ballot positions correctly • Accept: 1,549,703 (or more) consecutive ballot positions are read correctly • If there is one error with more than 26,997 ballot positions but less than 1,549,703 correctly read, continue until another 1,576,701 consecutive ballot positions are counted without error (i.e. Accept: 3,126,404 with one error)

Test Detail	Test Methodology
Test Case Name	Accuracy
Post-Vote: Closing the Polls	<ul style="list-style-type: none"> • Polls are properly closed • Further casting of ballots and reopening of the polls is prohibited • Device status is normal • Identify any issues, failures, or unexpected results and their required corrective action(s) • Create a test record that verifies the sequence of test events
Post-Vote: Central Count	Capture, document, and verify all counts
Post-Vote: Security	<p>Post-Vote - Security:</p> <ul style="list-style-type: none"> • System username/password authentication and other access controls are set up according to system documentation guidelines for all devices being tested. • Any/all unnecessary processes are disabled and/or required process control measures noted in the documentation are followed. • All COTS and vendor subsystems used for system security are configured and active as recommended by the system documentation. This includes all connection, port, virus, data or authorized process restriction systems. • Any other pre-election system security measures listed in the documentation are followed including setup of additional hardware or software not covered above <p>Please also see the Documentation section of the Security Test Case within Appendix A.</p>
Results are Observed	<p>Review the outcome of the test(s) against the expected result(s):</p> <ul style="list-style-type: none"> • Accept: expected results is observed • Reject: expected result is NOT observed • Not Testable (NT): rejection of a previous test step prevents validation of this step or this was tested in another test case • Not Applicable (NA): not applicable to the current test scope • Not Supported (NS): not supported in the current test scope
Record Observations and all input/outputs for each election	<ul style="list-style-type: none"> • All information used in processing the test case is captured. This includes: inputs, outputs, deviations and any other item that may impact the validation of the test case. • Any failure of the test against the EAC guidelines is reported and implies failure of the system • Failures are reported as Defect Issues in the Discrepancy Report and are provided to the manufacturer • Before the final Certification report is issued, manufacturers are given the opportunity to correct all discrepancies • If corrections are submitted by the manufacturer, retests are performed • Issues that do not impact the failure of the requirements but could be considered defects are logged as Informational Issues on the Discrepancy Report. It is the manufacturer's option to address these issues.

7.5 Security and Telecommunications Test Results

Test Detail	Test Methodology
Test Case Name	Security
Scope	<p>Security Testing Overview Security testing is related to four activities.</p> <ul style="list-style-type: none"> • Documentation Review - Documentation Review verifies that the system has documented policies and procedures that mitigate or eliminate security threats outlined in the VSS and/or VSSG guidelines. It also describes Access controls • Source Code Review - Source Code Review insures source code meets VSS and/or VVSG guidelines and provides additional protection against security flaws into the system. Potential security issues may include default passwords or backdoors in the source code, encryption keys in the source code, encryption flaws, unencrypted data transmissions, encryption algorithms that are not NIST certified, etc. • Hardware Testing - Hardware Testing insures that that equipment will stand up to environment conditions, machines are accurate, physical access to machine components is restricted, machine hardware is reliable and attempts to compromise machine security is detectable. A hardware malfunction could impact the accuracy of voting data or provide unauthorized access to secure information. Specific hardware limitations or restrictions impact the test procedures needed to validate security of the system. • System Testing - System Testing verifies that voting systems have sufficient system and data protection mechanisms that when combined with other review processes, provide a secure voting environment. This section of the document relates to System Testing but depends on the other three activities that are covered in their own specific section.
Objective	Security testing attempts to identify flaws in voting systems where undesired or unauthorized human or machine activity may compromise an election through system failure, data manipulation, data interception or other means.
Results	<p>PASSED</p> <ul style="list-style-type: none"> • Informational – 9 Open issues
Findings	<p>Tests for threats such as viruses and Trojan Horses were conducted with MacAfee Antivirus as per vendor recommendation but it may not be included with Premier's software and is up to purchaser to install. As such protection ability may vary depending on the choice of virus checker and settings made by the purchasing organization.</p> <p>The bottom of the AVPM printer is easily opened in less than a second with some pressure and a pen but we were unable to reach beyond the plastic of the printer mechanism. This access may make it possible to tear the paper with a device but the existing cast ballots already recorded on paper are protected inside a plastic container that does not allow the printed record to be pulled back out. Such an intrusion would also be visible to poll workers as the bottom of the printer is close to the bottom of the machine. As such, we feel the system allows immediate</p>

Test Detail	Test Methodology
Test Case Name	Security
	<p>detection of tampering and is passed under those criteria. Usernames appeared to be transmitted to the ASM in plain text. Since usernames are visible on screen during login anyway this should not reduce security but we suggest vendor encrypt all transmissions in the future. Passwords were not visible and all other election data was protected by SSL encryption. We were unable to breach the SSL transmissions during testing.</p> <p><u>Functional Testing Discrepancy Rpt GEMS</u></p> <ul style="list-style-type: none"> • #1, Functional, error occurred while attempting to install GEMS • #5, Doc, Documentation does not specify the preferred configuration <p><u>Functional Testing Discrepancy Rpt Security</u></p> <p>#1, Doc, VCE User's Guide - not mentioning security #2, Doc, VCE User's Guide – no reference to Security Policy #3, Informational, VCE User's Guide – no mention that it is only for authorized personnel #4, Informational, VCE User's Guide – missing text for document protective storage #5, Doc, ExpressPoll Admin Guide – no mention of LAN port security #6, Doc, ExpressPoll Admin Guide – no mention of physical security #7, Doc, ExpressPoll Admin Guide – no reference to Security Policy #8, Informational, ExpressPoll Admin Guide – no mention that it is only for authorized personnel #9, Informational, ExpressPoll Admin Guide – missing text for document protective storage #10, Doc, ExpressPoll User's Guide – no mention of physical security #11, Doc, ExpressPoll User's Guide – no reference to Security Policy #12, Informational, ExpressPoll User's Guide – no mention that it is only for authorized personnel #13, Informational, ExpressPoll User's Guide – missing text for document protective storage #14, Doc, ExpressPoll 4000 User's Guide – no reference to Security Policy #15, Doc, ExpressPoll 4000 User's Guide – no reference to Security Policy. #16, Informational, ExpressPoll 4000 User's Guide – no mention that it is only for authorized personnel #17, Informational, ExpressPoll 4000 User's Guide – missing text for document protective storage #18, Doc, ExpressPoll 4000 System Administrator's Guide – no mention of physical security #19, Doc, ExpressPoll 4000 System Administrator's Guide – no reference to Security Policy #20, Informational, ExpressPoll 4000 System Administrator's Guide – no mention that it is only for authorized personnel #21, Informational, ExpressPoll 4000 System Administrator's Guide – missing text for document protective storage #22, Doc, ExpressPoll 4000 Pollworker's Guide – page 1-2, step 15, no mention of any security "when using a network" #23, Doc, ExpressPoll 4000 Pollworker's Guide – no mention of physical security</p>



Test Detail	Test Methodology
Test Case Name	Security
	<p>#24, Doc, ExpressPoll 4000 Pollworker's Guide – no reference to Security Policy</p> <p>#25, Informational, ExpressPoll 4000 Pollworker's Guide – no mention that it is only for authorized personnel</p> <p>#26, Informational, ExpressPoll 4000 Pollworker's Guide – missing text for document protective storage</p> <p>#27, Doc, ExpressPoll 2000 System Administrator's Guide – no mention of physical security</p> <p>#28, Doc, ExpressPoll 2000 System Administrator's Guide – no reference to Security Policy</p> <p>#29, Informational, ExpressPoll 2000 System Administrator's Guide – no mention that it is only for authorized personnel</p> <p>#30, Informational, ExpressPoll 2000 System Administrator's Guide – missing text for document protective storage</p> <p>#31, Doc, ExpressPoll 2000 User's Guide – no mention of physical security</p> <p>#32, Doc, ExpressPoll 2000 User's Guide – no reference to Security Policy</p> <p>#33, Informational, ExpressPoll 2000 User's Guide – no mention that it is only for authorized personnel</p> <p>#34, Informational, ExpressPoll 2000 User's Guide – missing text for document protective storage</p> <p>#35, Doc, ExpressPoll Emulator and Resource Guide – no mention of physical security</p> <p>#36, Doc, ExpressPoll Emulator and Resource Guide – no reference to Security Policy</p> <p>#37, Informational, ExpressPoll Emulator and Resource Guide – no mention that it is only for authorized personnel</p> <p>#38, Informational, ExpressPoll Emulator and Resource Guide – missing text for document protective storage</p> <p>#39, Doc, VCProgrammer User's Guide – no mention of physical security</p> <p>#40, Doc, VCProgrammer User's Guide – no reference to Security Policy</p> <p>#41, Informational, VCProgrammer User's Guide – no mention that it is only for authorized personnel</p> <p>#42, Informational, VCProgrammer User's Guide – missing text for document protective storage</p> <p>#43, Doc, VCProgrammer System Administrator's Guide – no mention of what constitutes a secure environment</p> <p>#44, Doc, VCProgrammer System Administrator's Guide – no mention of physical security</p> <p>#45, Doc, VCProgrammer System Administrator's Guide – no reference to Security Policy</p> <p>#46, Informational, VCProgrammer System Administrator's Guide – no mention that it is only for authorized personnel</p> <p>#47, Informational, VCProgrammer System Administrator's Guide – missing text for document protective storage</p> <p>#48, Doc, Key Card Tool User's Guide – no mention of physical security</p> <p>#49, Doc, Key Card Tool User's Guide – no reference to Security Policy</p> <p>#50, Informational, Key Card Tool User's Guide – no mention that it is only for authorized personnel</p> <p>#51, Informational, Key Card Tool User's Guide – missing text for document protective storage</p> <p>#52, Informational, Premier's Client Security Policy – no mention that it is only for authorized personnel</p> <p>#53, Informational, Premier's Client Security Policy – missing text for document protective storage</p> <p>#54, Doc, ASSURE Security Manager User's Guide – no mention of what constitutes a secure environment</p> <p>#55, Doc, ASSURE Security Manager User's Guide – no mention of physical security</p> <p>#56, Informational, ASSURE Security Manager User's Guide – no mention that it is only for authorized personnel</p> <p>#57, Informational, ASSURE Security Manager User's Guide – missing text for document protective storage</p>

Test Detail	Test Methodology
Test Case Name	Security
	<p>#58, Doc, Election Media Processor User's Guide – no mention of what constitutes a secure environment</p> <p>#59, Doc, Election Media Processor User's Guide – no mention of what constitutes a secure environment</p> <p>#60, Doc, Election Media Processor User's Guide – no mention of physical security</p> <p>#61, Informational, Election Media Processor User's Guide – no mention that it is only for authorized personnel</p> <p>#62, Informational, Election Media Processor User's Guide – missing text for document protective storage</p> <p>#63, Doc, Election Media Processor Hardware Guide – no mention of physical security</p> <p>#64, Informational, Election Media Processor Hardware Guide – no mention that it is only for authorized personnel</p> <p>#65, Informational, Election Media Processor Hardware Guide – missing text for document protective storage</p> <p>#66, Doc, GEMS System Administrator's Guide – no mention of what constitutes a secure environment</p> <p>#67, Doc, GEMS System Administrator's Guide – no mention of physical security</p> <p>#68, Informational, GEMS System Administrator's Guide – no mention that it is only for authorized personnel</p> <p>#69, Doc, GEMS System Administrator's Guide – missing text for document protective storage</p> <p>#70, Doc, GEMS Election Administrator's Guide – no mention of physical security</p> <p>#71, Informational, GEMS Election Administrator's Guide – no mention that it is only for authorized personnel</p> <p>#72, Informational, GEMS Election Administrator's Guide – missing text for document protective storage</p> <p>#73, Doc, GEMS Reference Guide – no mention of physical security</p> <p>#74, Informational, GEMS Reference Guide – no mention that it is only for authorized personnel</p> <p>#75, Informational, GEMS Reference Guide – missing text for document protective storage</p> <p>#76, Doc, GEMS User's Guide – no mention of physical security</p> <p>#77, Informational, GEMS User's Guide – no mention that it is only for authorized personnel</p> <p>#78, Informational, GEMS User's Guide – missing text for document protective storage</p> <p>#79, Doc, BallotStation System Administrator's Guide – no mention of physical security</p> <p>#80, Informational, BallotStation System Administrator's Guide – no mention that it is only for authorized personnel</p> <p>#81, Informational, BallotStation System Administrator's Guide – missing text for document protective storage</p> <p>#82, Doc, BallotStation User's Guide – no mention of physical security</p> <p>#83, Informational, BallotStation User's Guide – no mention that it is only for authorized personnel</p> <p>#84, Informational, BallotStation User's Guide – missing text for document protective storage</p> <p>#85, Informational, AccuVote-TSX Hardware Guide – no mention that it is only for authorized personnel</p> <p>#86, Informational, AccuVote-TSX Hardware Guide – missing text for document protective storage</p> <p>#87, Doc, Premier's Windows Configuration Guide – no reference to Security Policy</p> <p>#88, Informational, Premier's Windows Configuration Guide – no mention that it is only for authorized personnel</p> <p>#89, Informational, Premier's Windows Configuration Guide – missing text for document protective storage</p> <p>#90, Informational, Premier's Windows Configuration Guide – how does the user know to perform these tasks?</p> <p>#91, Informational, Premier's Client Security Policy – Sect 4, first paragraph, either change the section title to match the text or the text should change to match the section title</p> <p>#92, Informational, Premier's Client Security Policy – should reference Premier's Windows Configuration Guide</p>

Test Detail	Test Methodology
Test Case Name	Security
	<p>#93, Informational, ASSURE Security Manager User's Guide – Sect 2.1 describes defining a password</p> <p>#94, Informational, GEMS User's Guide – Sect 2.1, not much text on importance of passwords</p> <p>#95, Informational, ASM 1.0.1 TDP, System Security Specifications – ASM documentation set is incomplete</p> <p>#96, Informational, ASM 1.0.1 TDP, System Security Specifications – hardware access controls are applicable</p> <p>#97, Informational, ASM 1.0.1 TDP, System Security Specifications – unable to find mention of a reference</p> <p>#98, Informational, ASM 1.0.1 TDP, System Security Specifications – need a description for the hardware</p> <p>#99, Informational, ASM 1.0.1 TDP, System Security Specifications – a link to a website not under control of Premier Election Solutions</p> <p>#100, Informational, ASM 1.0.1 TDP, System Security Specifications – consistency between “authorized personnel” and “qualified technicians”</p> <p>#101, Informational, ASM 1.0.1 TDP, System Security Specifications – need a description for the hardware</p> <p>#102, Informational, GEMS User's Guide – administrators should have client/server authentication enabled</p> <p>#103, Doc, GEMS User's Guide – recommend two new steps</p> <p>#104, Informational, PCS 2.0.4 TDP, System Security Specification – PCS documentation set is incomplete</p> <p>#105, Informational, PCS 2.0.4 TDP, System Security Specification – unable to find mention of a reference</p> <p>#106, Informational, PCS 2.0.4 TDP, System Security Specification – unable to find mention of a reference</p> <p>#107, Informational, ASM 1.0.1 TDP, System Security Specifications – unable to find in Client Security Policy</p> <p>#108, Informational, PCS 2.0.4 TDP, System Security Specification – unable to find in GEMS Administrator's Guide</p> <p>#109, Informational, PCS 2.0.4 TDP, System Security Specification – need a description for the hardware</p> <p>#110, Informational, PCS 2.0.4 TDP, System Security Specification - consistency between “authorized personnel” and “qualified technicians”</p> <p>#111, Informational, PCS 2.0.4 TDP, System Security Specifications – need a description for the hardware</p> <p>#112, Informational, EMP 4.7.1 TDP, System Security Specification – EMP documentation set is incomplete</p> <p>#113, Informational, EMP 4.7.1 TDP, System Security Specification - consistency between “authorized personnel” and “qualified technicians”</p> <p>#114, Informational, EMP 4.7.1 TDP, System Security Specification – need a description for the hardware</p> <p>#115, Informational, GEMS 1.20.2 TDP, System Security Specification – GEMS documentation set is incomplete</p> <p>#116, Informational, GEMS 1.20.2 TDP, System Security Specification – need a description for the hardware</p> <p>#117, Informational, BallotStation 4.7.2 TDP, System Security Specification – BallotStation documentation set is incomplete</p> <p>#118, Informational, BallotStation 4.7.2 TDP, System Security Specification – change the reference to Appendix F</p> <p>#119, Informational, BallotStation 4.7.2 TDP, System Security Specification – change the reference to Sect 8.3.8</p> <p>#120, Informational, AccuVote-OS Central Count 2.0.13 TDP, System Security Specifications – AccuVote-OS documentation set is incomplete</p>

Test Detail	Test Methodology
Test Case Name	Security
	<p>#121, Informational, AccuVote-OS Central Count 2.0.13 TDP, System Security Specifications – change reference to read “Appendix C: Acceptance Test”</p> <p>#122, Informational, AccuVote-OSX 1.0.1 TDP, System Security Specifications – AccuVote-OSX documentation set is incomplete</p> <p>#123, Informational, AccuVote-OSX 1.0.1 TDP, System Security Specifications – need a description for the hardware</p> <p>#124, Informational, AccuVote-OSX 1.0.1 TDP, System Security Specifications – AccuVote-OSX documentation set is incomplete</p> <p>#125, Informational, AccuVote-OSX 1.0.1 TDP, System Security Specifications – need a description for the hardware</p> <p>#126, Informational, Key Card Tool 4.7.1 TDP, System Security Specifications – need a documentation set</p> <p>#127, Informational, Key Card Tool 4.7.1 TDP, System Security Specifications – need hardware access controls</p> <p>#128, Informational, AccuVote-TS R6 TDP, System Security Specifications – change reference</p>
Variables: Voting Variations	<p>Prevent and/or detect undesired system activities including:</p> <ul style="list-style-type: none"> • Unauthorized access through accidental or intentional bypass or circumvention of authorization controls. • Alteration, deletion, replacement or theft of voter, election, audit and/or vote data. • Hardware and/or software tampering • Interruption of voting activities
A description of the voting system type and the operational environment	Same as Readiness Test
Standards Documents	<p>Voting System Standards 2002, vol. 1</p> <p>Voting System Standards 2002, vol. 2</p> <p>Specific standards are noted in following steps</p>
Role	<p>Privileges are not allowed to be:</p> <ul style="list-style-type: none"> • Exceeded (V1:6.2.1.2c) • Changed to Run Reports <p>Voters are inhibited from:</p> <ul style="list-style-type: none"> • Accessing Equipment Before Polls Open • Running Reports <p>Changes to Privileges are Prohibited for IDs and Passwords Thus Preventing Unauthorized Report Printing, Results Transmission, Results Downloading and Resetting of Elections</p>

Test Detail	Test Methodology
Test Case Name	Security
	<p>Voter equipment access or keys are limited to ensure:</p> <ul style="list-style-type: none"> • Only the User interface is accessible • Only a single vote may be cast • Closed Polls are secure • Counts are not available to voters • Unauthorized Accounts from System Functions <p>Fraudulent Ballots are not accepted by the system ensuring only valid ballots are counted</p>
Access	<p>Access validation to the system ensures that only applicable system entry is allowed. This includes:</p> <ul style="list-style-type: none"> • Seals and/or Password are Required to Open Polls (V1:2.4.1.3.a, 3.2.4.2.6.b) • Security Seal and/or Password Prevent Unauthorized Opening of Polls • Incorrect or Blank Password Cannot be Used to Open Polls (V1:6.2.1.1.d) • System Provides Access Controls that Limit or Detect Access to Critical System Components (V1:2.1.1.a, 6.2.1.1.d)
System Security	<p>System security ensures that executables can only be run in their intended manner and order so that any other type of attempt to run the system is prohibited. (V1:2.1.1b) Additionally, executable preconditions are verified. Safeguards During Repair, Interventions or Failure are validated to ensure that tampering is not possible. Security Provision Compatibility With Procedures and Admin Tasks Incorporate a means of implementing a capability if access to a system function is to be restricted or controlled.</p>
System Log	<p>Verification of System Log Activity is performed to ensure:</p> <ul style="list-style-type: none"> • Error Activity provided by the system is complete, applicable, and appropriate (V1:4.4.3) • Voting Activity is captured correctly (V1:4.4.3.d) • Log(s) have the needed protection to validate that the information is secure (V1:4.4.3)
Software Security	<p>Software security validation ensures that the firmware has been shown to be inaccessible to activation or control (V1:6.4.1.c) Verify the Separation of Election Specific Firmware and Operating System are stored (V1:6.4.1.d)</p>
Data Integrity	<ul style="list-style-type: none"> • Transmission of data shall ensure that receipt of valid vote records is verified at the receiving stations (V1:6.5.2) • Transmission of Cast Ballots During Voting Error Detection, Recovery and Retransmission • Transmission of Cast Ballots During Voting Integrity Checks • Transmission Verification Checks
Telecommunications & Data Transmission	<ul style="list-style-type: none"> • Encrypted Transmissions (V1:6.5.3.a) • Encryption Specification Verification • Session Hijacking

Test Detail	Test Methodology
Test Case Name	Security
	<ul style="list-style-type: none"> Monitoring and Responding to External Threats (V1:6.5.4.3) Shared Operating Environment (V1:6.5.5)
Telecommunications	<ul style="list-style-type: none"> Security for Transmissions (V1:6.6) Unauthorized Tool Virus Threat Reception and Storage Prevention (V1:6.5.4.2) Remote Access Disabled User Account Restriction From Remote Access Settings Routers and/or Firewalls
Threat Protection	<ul style="list-style-type: none"> Memory Threat & Virus Scanning Mechanisms (V1:6.5.4.2) Rootkit Scanning Mechanisms
Audit Log	<p>Audit logs and data files cannot be altered through the use of an alternate boot sequence without detection, and the test will consist of attempting to boot the devices using alternative media during boot sequences.</p> <p>Audit logs and data files cannot be altered through the use of editing tools without detection.</p> <p>The test will consist of attempting to edit the audit log to confirm that the system either:</p> <ul style="list-style-type: none"> Does not allow edits of the audit log or data files, or Detects and reports all attempts at editing the audit log or data files
Data Protection	Logical Isolation of Voting System Software & Data (V1:6.5.5.b)
Role	<ul style="list-style-type: none"> Password Required for Each System Software Component (V1:6.5.5.c) Password Required for Each System Data Component Password Required for Each System Data Component Hardware Key Required for Each System Hardware Component Each Type of User Account Can Only Perform Intended Functions
Data Protection	<ul style="list-style-type: none"> Access Control Lists Preclude Data Leakage (V1:6.5.5.d) Routers and Firewalls Preclude Data Leakage Electronic Policies Prevent Copy of Data Voting System Access to Incomplete Election Returns (V1:6.5.6)
Documentation	<p>All vendor documentation is reviewed to validate all Vendor Access Control Policies pertaining to:</p> <ul style="list-style-type: none"> General, Software, Hardware Access controls Communications Effective Password management Protection abilities of a particular operating system General characteristics of supervisory access privileges Segregation of duties

Test Detail	Test Methodology
Test Case Name	Security
	<ul style="list-style-type: none"> • Vendor's access privileges • Access control measures • Physical security measures • Polling place security • Central count location security • Software security • Software and firmware installation • Protection against malicious software • Telecommunications and data transmission • Data integrity • Data interception prevention • Protection against external threats • Identification of COTS Products • Use of protective software • Monitoring and responding to external threats • Shared operating environment • Access to incomplete election returns and interactive queries • Security for transmission of official data over public communications networks • General security requirements for systems transmitting data over public networks • Voting process security for casting individual ballots over a public telecommunications networks • Documentation of mandatory security activities • Capabilities to operate during interruption of telecommunications capabilities • Any other relevant characteristics
External Access	Blocked Central Count Environment Access to Incomplete Election Returns (V1:6.5.6.a)

Test Detail	Test Methodology
Test Case Name	Telecommunications
Scope	A functional level test that uses The 2002 Voting System Standards (VSS) guidelines to validate required functionality. Testing includes Telecommunications capability of the Premier voting system.
Objective	The object of this test case is to verify that the Physical, Technical, and Procedural (documentation) controls correspond correctly for Telecommunication features.
Results	PASSED
Findings	No issues found during testing.
Variables: Voting Variations	<ul style="list-style-type: none"> • Select type of components on the components tab using the vendor documentation. (V1:5.1.1) • Voting-related transmission over a public network. (V1:5.1.2) • Data / Vote Transmission (V1:5.1.3) • Capabilities (5.2 - 5.2.5): considered basic to all data transmissions. (V1:5.2, 5.2.1, 5.2.6) • Confirmation, the system notifies the user of the successful or unsuccessful completion of the data transmission. (V1:5.2.7) • Voting systems that use telecommunications to communicate between system components and locations are subject to the same security requirements governing access to any other system hardware, software, and data function. (V1:6.5.1 - 6.5.2) • PCMCIA Cards are analyzed with Windows OS drivers to read the card. The files are then modified with a hex editor and it is verified that the system detects files have been altered. • Voting systems that use public telecommunications networks shall protect against threats. (V1:6.5.4 - 6.5.4.3) • Systems that use a shared operating environment (V1:6.5.5) • Access to Incomplete Election Returns and Interactive Queries (V1:6.5.6) • Security for Transmission of Official Data Over Public Communications Networks. Transmitting Data Over Public Network (V1:6.6, 6.6.1) • Security for Casting Individual Ballots over a Public Telecommunications Network (V1:6.6.2, 6.6.2.1) • Operate During Interruption of Telecommunications Capabilities (V1:6.6.2.2)
A description of the voting system type and the operational environment	See GEN03
Standards Documents	SEE GEN03

Test Detail	Test Methodology
Test Case Name	Telecommunications
Pre-requisites and initialization of the test case	SEE GEN03 Additionally, the following are performed: <ul style="list-style-type: none"> • Prepare device & test specific option setting • Prepare computer and device peripheral hardware options • Load firmware/data media • Validate basic device communication functionality, usability • Load voter registration - Electronic Poll Book at precincts
Documentation of Test Data & Test Results	SEE GEN03
Pre-vote: Ballot Preparation procedures verifications	SEE GEN03
Pre-vote: System Preparation - Security	SEE GEN03
Readiness Testing and Poll Verification	SEE GEN03 The election is correctly installed and Electronic Poll Book is in use
Pre-vote: Opening the Polls Verification	SEE GEN03
Voting: Required functionality verifications	SEE GEN03

Test Detail	Test Methodology
Test Case Name	Telecommunications
Voting: Optional functionality verifications	<ul style="list-style-type: none"> • Components are set up as described in the vendor documentation (V1:5.1.1) • Voting-related transmission over a public network. (V1:5.1.2) • Data / Vote Transmission (V1:5.1.3) • Capabilities (5.2 - 5.2.5): considered basic to all data transmissions. (V1:5.2, 5.2.1, 5.2.6) • Confirmation, the system notified the user of the successful or unsuccessful completion of the data transmission. (V1:5.2.7) • Voting systems that use telecommunications to communicate between system components and locations are subject to the same security requirements governing access to any other system hardware, software, and data function. (V1:6.5.1 - 6.5.2) • Voting systems that use public telecommunications networks protect against threats. (V1:6.5.4 - 6.5.4.3) • Systems that used a shared operating environment (V1:6.5.5) • Access to Incomplete Election Returns and Interactive Queries (V1:6.5.6) • * Security for Transmission of Official Data Over Public Communications Networks. Transmitting Data Over Public Network (V1:6.6, 6.6.1) • Security for Casting Individual Ballots over a Public Telecommunications Network (V1:6.6.2, 6.6.2.1) • Operate During Interruption of Telecommunications Capabilities (V1:6.6.2.2)
Post-Vote: Closing the Polls	SEE GEN03
Post-Vote: Central Count	SEE GEN03
Post-Vote: Security	SEE GEN03
Post-Vote: System Audit	SEE GEN03
Results are Observed	SEE GEN03
Record Observations and all input/outputs for each election	SEE GEN03

7.6 HAVA Requirements

Req. No.	SEC. 301 <<NOTE: 42 USC 15481>> VOTING SYSTEMS STANDARDS	Test Case(s)	FCA
301-a	Requirements--Each voting system used in an election for Federal office shall meet the following requirements:	See below	
301-a.1.A 301-a.1.A.i	Except as provided in subparagraph (B), the voting system (including any lever voting system, optical scanning voting system, or direct recording electronic system) shall: Permit the voter to verify (in a private and independent manner) the votes selected by the voter on the ballot before the ballot is cast and counted;	All system level test cases	2.4.3.3.h
301-a.1.A 301-a.1.A.ii	Except as provided in subparagraph (B), the voting system (including any lever voting system, optical scanning voting system, or direct recording electronic system) shall: Provide the voter with the opportunity (in a private and independent manner) to change the ballot or correct any error before the ballot is cast and counted (including the opportunity to correct the error through the issuance of a replacement ballot if the voter was otherwise unable to change the ballot or correct any error);	All system level test cases	2.4.3.3.h
301-a.1.A 301-a.1.A.iii	Except as provided in subparagraph (B), the voting system (including any lever voting system, optical scanning voting system, or direct recording electronic system) shall: If the voter selects votes for more than one candidate for a single office—	See below	
301-a.1.A.iii.I	If the voter selects votes for more than one candidate for a single office— Notify the voter that the voter has selected more than one candidate for a single office on the ballot;	All system level test cases with paper ballots; GEN01 GEN03 PRI01	---
301-a.1.A.iii.II	If the voter selects votes for more than one candidate for a single office— Notify the voter before the ballot is cast and counted of the effect of casting multiple votes for the office;	All system level test cases with paper ballots; GEN01 GEN03 PRI01	---

301-a.1.A.iii.III	If the voter selects votes for more than one candidate for a single office— Provide the voter with the opportunity to correct the ballot before the ballot is cast and counted.	All system level test cases with paper ballots; GEN01 GEN03 PRI01	---
301-a.1.B 301-a.1.B.i	A State or jurisdiction that uses a paper ballot voting system, a punch card voting system, or a central count voting system (including mail-in absentee ballots and mail-in ballots), may meet the requirements of subparagraph (A)(iii) by-- Establishing a voter education program specific to that voting system that notifies each voter of the effect of casting multiple votes for an office;	NA	
301-a.1.B 301-a.1.B.ii	A State or jurisdiction that uses a paper ballot voting system, a punch card voting system, or a central count voting system (including mail-in absentee ballots and mail-in ballots), may meet the requirements of subparagraph (A)(iii) by-- Providing the voter with instructions on how to correct the ballot before it is cast and counted (including instructions on how to correct the error through the issuance of a replacement ballot if the voter was otherwise unable to change the ballot or correct any error).	NA	
301-a.1.C	The voting system shall ensure that any notification required under this paragraph preserves the privacy of the voter and the confidentiality of the ballot.	NA	
301-a.2 301-a.2.A	Audit capacity-- In general--The voting system shall produce a record with an audit capacity for such system.	All system level test cases;	2.2.4.1.h and 2.2.5
301-a.2 301-a.2.B 301-a.2.B.i	Audit capacity-- Manual audit capacity-- The voting system shall produce a permanent paper record with a manual audit capacity for such system.	All system level test cases	2.2.4.1.h and 2.2.5
301-a.2 301-a.2.B 301-a.2.B.ii	Audit capacity-- Manual audit capacity-- The voting system shall provide the voter with an opportunity to change the ballot or correct any error before the permanent paper record is produced.	All system level test cases	---
301-a.2 301-a.2.B 301-a.2.B.iii	Audit capacity-- Manual audit capacity-- The paper record produced under subparagraph (A) shall be available as an official record for any recount conducted with respect to any election in which the system is used.	All system level test cases	---

301-a.3 301-a.3.A	Accessibility for individuals with disabilities--The voting system shall-- Be accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as for other voters;	GEN 03	2.2.7.2
301-a.3 301-a.3.B	Accessibility for individuals with disabilities--The voting system shall-- Satisfy the requirement of subparagraph (A) through the use of at least one direct recording electronic voting system or other voting system equipped for individuals with disabilities at each polling place;	GEN 03	2.2.7.2
301-a.3 301-a.3.C	Accessibility for individuals with disabilities--The voting system shall-- If purchased with funds made available under title II on or after January 1, 2007, meet the voting system standards for disability access (as outlined in this paragraph).	NA	
301-a.4	Alternative language accessibility--The voting system shall provide alternative language accessibility pursuant to the requirements of section 203 of the Voting Rights Act of 1965 (42 U.S.C. 1973aa-1a).	GEN 03	2.3.1.3.1.a
301-a.5	Error rates--The error rate of the voting system in counting ballots (determined by taking into account only those errors which are attributable to the voting system and not attributable to an act of the voter) shall comply with the error rate standards established under section 3.2.1 of the voting systems standards issued by the Federal Election Commission which are in effect on the date of the enactment of this Act.	Accuracy Test Case	---
301-a.6	Uniform definition of what constitutes a vote--Each State shall adopt uniform and nondiscriminatory standards that define what constitutes a vote and what will be counted as a vote for each category of voting system used in the State.	NA	
301-b 301-b.1 301-b.1.A 301-b.1.B 301-b.1.C 301-b.1.D	Voting System Defined--In this section, the term ``voting system" means— The total combination of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used-- (A) to define ballots; (B) to cast and count votes; (C) to report or display election results; and (D) to maintain and produce any audit trail information;	NA	
301-b 301-b.2 301-b.2.A	Voting System Defined--In this section, the term ``voting system" means— The practices and associated documentation used— to identify system components and versions of such components;	NA	
301-b 301-b.2 301-b.2.B	Voting System Defined--In this section, the term ``voting system" means— The practices and associated documentation used— to test the system during its development and maintenance;	NA	
301-b 301-b.2 301-b.2.C	Voting System Defined--In this section, the term ``voting system" means— The practices and associated documentation used— to maintain records of system errors and defects;	NA	
301-b 301-b.2	Voting System Defined--In this section, the term ``voting system" means— The practices and associated documentation used—	NA	

301-b.2.D	to determine specific system changes to be made to a system after the initial qualification of the system;		
301-b 301-b.2 301-b.2.E	Voting System Defined--In this section, the term ``voting system" means - The practices and associated documentation used - To make available any materials to the voter (such as notices, instructions, forms, or paper ballots).	NA	
301-c 301-c.1	Construction - In general--Nothing in this section shall be construed to prohibit a State or jurisdiction which used a particular type of voting system in the elections for Federal office held in November 2000 from using the same type of system after the effective date of this section, so long as the system meets or is modified to meet the requirements of this section.	NA	
301-c 301-c.2	Construction - Protection of paper ballot voting systems--For purposes of subsection (a)(1)(A)(i), the term ``verify" may not be defined in a manner that makes it impossible for a paper ballot voting system to meet the requirements of such subsection or to be modified to meet such requirements.	NA	
301-d	Effective Date--Each State and jurisdiction shall be required to comply with the requirements of this section on and after January 1, 2006.	NA	

End of HAVA Requirements

8 Appendix B – EAC Certification Number

This report has been submitted to the technical committee of the Election Assistance Commission on [Enter: date]. Upon acceptance of this report by the EAC technical committee, a certification number will be issued.

At that time SysTest Labs will update this page to reflect the assigned EAC Certification Number and provide a final revision of this report to the vendor.

This certification is for the system(s) described as:

Voting System Name	Version

Polling Place Equipment Name	Version	Polling Place Software/Firmware	Version

(If multiple devices add lines and repeat for each one)

EMS Software	Version	EMS Function Description

(If EMS is a suite, identify the first line by the suite name and add lines and repeat for each application)

(If there is more than one Voting System then repeat for each complete voting system.)

End of Certification Report
