United States Election Assistance Commission

Certificate of Conformance

ES&S EVS 5.2.0.0

VVSG 2005 VER. I

EAC CERTIFIED

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the 2005 *Voluntary Voting System Guidelines (2005 VVSG)*. Components evaluated for this certification are detailed in the attached Scope of Certification document. This certificate applies only to the specific version and release of the product in its evaluated configuration. The evaluation has been verified by the EAC in accordance with the provisions of the EAC *Voting System Testing and Certification Program Manual* and the conclusions of the testing laboratory in the test report are consistent with the evidence adduced. This certificate is not an endorsement of the product by any agency of the U.S. Government and no warranty of the product is either expressed or implied.

Product Name: EVS

Model or Version: 5.2.0.0

Name of VSTL: NTS Huntsville

EAC Certification Number: ESSEVS5200

Date Issued: 7/2/2014

Chief Operating Officer & Acting Executive Director
U.S. Election Assistance Commission

Scope of Certification Attached

Manufacturer: *Election Systems & Software*
System Name: *EVS 5.2.0.0*
Certificate: *ESSEVS5200*

Laboratory: *NTS Huntsville*
Standard: *VVSG 1.0(2005)*
Date: *July 2, 2014*

Scope of Certification

This document describes the scope of the validation and certification of the system defined above. Any use, configuration changes, revision changes, additions or subtractions from the described system are not included in this evaluation.

Significance of EAC Certification

An EAC certification is an official recognition that a voting system (in a specific configuration or configurations) has been tested to and has met an identified set of Federal voting system standards. An EAC certification is **not**:

- An endorsement of a Manufacturer, voting system, or any of the system's components.
- A Federal warranty of the voting system or any of its components.
- A determination that a voting system, when fielded, will be operated in a manner that meets all HAVA requirements.
- A substitute for State or local certification and testing.
- A determination that the system is ready for use in an election.
- A determination that any particular component of a certified system is itself certified for use outside the certified configuration.

Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless it has received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on Web sites, on displays, and in advertising/sales literature must be made solely in reference to specific systems. Any action by a Manufacturer to suggest EAC endorsement of its product or organization is strictly prohibited and may result in a Manufacturer's suspension or other action pursuant to Federal civil and criminal law.

System Overview:

ES&S EVS 5.2.0.0 is comprised of the ExpressVote, AutoMARK Voter Assist Terminal (AutoMARK A100, A200 & A300), DS200 Precinct Digital Scanner (DS200), DS850 high-speed Central Count Digital Scanner, ElectionWare, Election Reporting Manager (ERM), ES&S Event Log Service, Removable Media Service (RMS), ExpressVote Previewer and VAT Previewer.

- The ExpressVote is a universal vote capture device designed for all voters, with independent voter-verifiable paper record that is digitally scanned for tabulation. This system combines paper-based voting with touch screen technology. The ExpressVote includes a mandatory vote summary screen that requires voters to confirm or revise selections prior to printing the summary of ballot selections using the internal thermal

printer. Once printed, ES&S ballot scanners process the vote summary card. The ExpressVote can serve all voters, including those with special needs, allowing voters to cast ballots autonomously. ES&S has fully integrated the ExpressVote with the existing suite of ES&S voting system products.

- AutoMARK Voter Assist Terminal enables voters who are visually or physically impaired and voters more comfortable reading or hearing instructions and choices in an alternative language to privately mark optical scan ballots. The AutoMARK supports navigation through touchscreen, physical keypad or ADA support peripheral such as a sip and puff device or two position switch.
- DS200 digital scanner is a paper ballot tabulator designed for use as a polling place scanner. After the voter makes their selections on their paper ballot, their ballot is inserted into the unit for immediate tabulation. Both sides of the ballot are scanned at the same time using a high-resolution image-scanning device that produces ballot images.
- The DS850 is a high-speed, digital scan central ballot counter that uses cameras and imaging algorithms to capture voter selections on the front and back of a ballot, evaluate results and then sort ballots into discrete bins without interrupting scanning. A dedicated audit printer generates a continuous event log. Machine level reports are produced from a second, laser printer. The scanner saves voter selections and ballot images to an internal hard disk and exports results to a USB Memory stick for processing with Election Reporting Manager.
- ElectionWare integrates the election administration functionality into a unified application. Its intended use is to define an election and create the resultant media files used by the ExpressVote, DS200 tabulator, AutoMARK™ Voter Assist Terminal (VAT), the DS850 Central Ballot Scanner, and Election Reporting Manager (ERM). An integrated ballot viewer allows election officials to view the scanned ballot and captured ballot data side-by-side and produce ballot reports.
- ES&S Event Log Service is a Windows Service that runs in the background of any active ES&S Election Management software application to monitor the proper functioning of the Windows Event Viewer. The ES&S Event Log Service closes any active ES&S software application if the system detects the improper deactivation of the Windows Event Viewer.
- The ExpressVote Previewer is an application within the EMS program that allows the user to preview audio text and screen layout prior to burning Election Day media for the ExpressVote.
- The VAT Previewer is an application within the EMS program that allows the user to preview audio text and screen layout prior to burning Election Day media for the AutoMARK™.
- Removable Media Service (RMS) is an application that runs in the background of the EMS client workstation and supports the installation and removal of election and results media.
- Election Reporting Manager (ERM) generates paper and electronic reports for election workers, candidates, and the media. Jurisdictions can use a separate ERM installation to display updated election totals on a monitor as ballot data is tabulated, and send the results' reports directly to the media outlets.

ERM supports accumulation and combination of ballot results data from all ES&S tabulators. Precinct and accumulated total reports provide a means to accommodate candidate and media requests for totals and are available upon demand. High-speed printers are configured as part of the system accumulation/reporting stations PC and related software.

Mark definition:

ES&S' declared level mark recognition for the DS200 and DS850 is a mark across the oval that is 0.2" long x 0.03" wide at any direction.

Tested Marking Devices:

Bic Grip Roller Pen

Language capability:

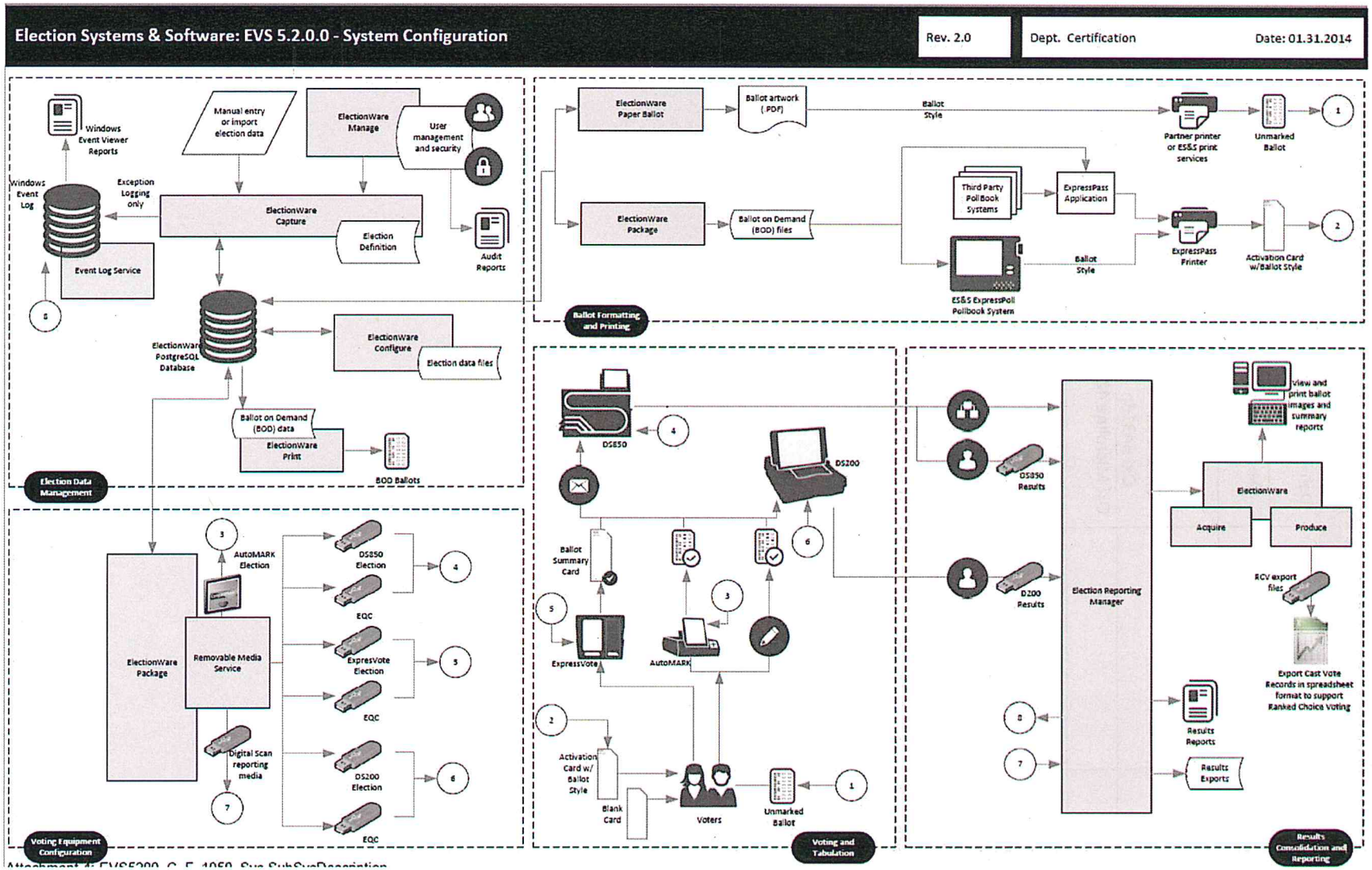
EVS 5.2.0.0 supports English, Spanish, Chinese, Korean and Japanese ballot languages.

Components Included:

This section provides information describing the components and revision level of the primary components included in this Certification.

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
ExpressVote	1.4.0.0	1.0		Vote Capture Device
DS200	2.12.0.0	1.2.1, 1.2.3, 1.3		Precinct Digital Scanner
AutoMARK A100	1.8.6.0	1.0		ADA Ballot Marking Device
AutoMARK A200	1.8.6.0	1.1, 1.3		ADA Ballot Marking Device
AutoMARK A300	1.8.6.0	1.3		ADA Ballot Marking Device
DS850	2.10.0.0	1.0		Central Count Scanner, high-speed
Ballot Box Hardware		1.2, 1.3		Plastic ballot box
Ballot Box Hardware		1.0, 1.1, 1.2		Metal ballot box with/without diverter
Election Ware	4.6.0.0			
Election Reporting Manager (ERM)	8.11.0.0			
ES&S Event Log Service	1.5.5.0			
VAT Previewer	1.8.6.0			
Removable Media Service	1.4.5.0			
EMS Reporting Workstation		Dell Optiplex 980		

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
EMS Server		Dell PowerEdge T710		
EMS reporting Laptop		Dell Latitude E6410		
Ballot on Demand Printer		C9650		
DS850 Report Printer		OKI B430dn & Oki B431dn		Laser report printer
DS850 Audit Printer		Oki Microline 420		Dot Matrix Printer
Headphones		Avid FV-060		
USB Flash Drive		Delkin 512MB		
USB Flash Drive		Delkin 4GB		
USB Flash Drive		Delkin 8 GB		
USB Flash Drive		Delkin 1 GB		
USB Flash Drive		Delkin 2 GB		
Compact Flash		Delkin Devices 1.0 GB capacity		


Election Systems & Software: EVS 5.2.0.0 - System Configuration
Rev. 2.0
Dept. Certification
Date: 01.31.2014
Windows Event Viewer Reports
Manual entry or import election data
ElectionWare Manage
User management and security
Windows Event Log
Exception Logging only
ElectionWare Capture
Election Definition
Audit Reports
Event Log Service
ElectionWare PostgreSQL Database
ElectionWare Configure
Election data files
Ballot on Demand (BOD) data
ElectionWare Print
BOD Ballots
Election Data Management
ElectionWare Paper Ballot
Ballot artwork (.PDF)
Ballot Style
Partner printer or ES&S print services
Unmarked Ballot
ElectionWare Package
Ballot on Demand (BOD) files
Third Party PollBook Systems
ExpressPass Application
ExpressPass Printer
Activation Card w/Ballot Style
ES&S ExpressPoll Pollbook System
Ballot Formatting and Printing
DS850
DS200
Ballot Summary Card
ExpressVote
AutoMARK
Activation Card w/ Ballot Style
Blank Card
Voters
Unmarked Ballot
Voting and Tabulation
DS850 Results
DS200 Results
Election Reporting Manager
view and print ballot images and summary reports
ElectionWare
Acquire
Produce
RCV export files
Export Cast Vote Records in spreadsheet format to support Ranked Choice Voting
Results Reports
Results Exports
Results Consolidation and Reporting
ElectionWare Package
AutoMARK Election
Removable Media Service
Digital Scan reporting media
DS850 Election
EQC
ExpresVote Election
EQC
DS200 Election
EQC
Voting Equipment Configuration

System Limitations

This table depicts the limits the system has been tested and certified to meet.

System Characteristic	Boundary or Limitation		Limiting Component
Max. precincts allowed in an election	9900		ERM
Max. count for any precinct element	500,000 (65,500 from any tabulator media)		ERM report (ERM results import)
Max. candidates allowed per election	Depends on election content (limited by 21,000 maximum counters)[1]		ERM
Max. contests allowed in an election	Depends on election content (limited by 21,000 maximum counters)[2]		ERM
Max. counters allowed per precinct	Limits candidates and contests assigned to a precinct to 1,000[3]		ERM
Max. contests allowed per ballot style	200 or number of positions on ballot		N/A
Max. candidates (ballot choices) allowed per contest	175		ERM (database create)
Max. number of parties allowed	General election: 75 Primary election: 20 (including nonpartisan party)		ERM (database create)
Max. 'vote for' per contest	98		ERM (database create)
Ballot formats	All paper ballots used in an election must be the same size and contain the number of response rows.		Ballot scanning equipment
Max. Ballot Styles	9900		ERM
Max. District Types/Groups	20		ERM
Max. districts of a given type[4]	40		ERM
Supported Languages	• English • Spanish • Chinese	• Korean • Japanese	System Configuration

[1] Calculation of the number of counters must include a minimum of 4 counters for each contest, 3 overhead (overvote, undervote, precincts counted) and at least 1 candidate. Additional contest candidates each add a counter. If some precincts are defined as Absentee, a fourth overhead counter (absentee precincts counted) must be added to each contest. The number of statistical counters (Ballots Cast, Registered voters) must be added to the contest counters to determine the total counters.

[2] Example of maximum contest calculation if all contests had 2 candidates (5 counters each, 3 overhead counters + 2 candidates) and there were 10 statistical counters (i.e. Ballots Cast-Total, Republican, Democratic, Libertarian, Nonpartisan and Registered Voters-Total, Republican, Democratic, Libertarian, Nonpartisan. (21000-20)/5 = 4196 or (counter limit – statistics x 2)/number of counters/contest = number of contests.

[3] Contest counters are calculated as indicated in footnote 1, but two counters must be added for each statistical counter defined for the precinct. There are a minimum of 3 statistic counters assigned to each precinct (six added counters), "Ballots Cast," "Registered Voters" and "Ballots Cast Blank."

[4] Excludes the Precinct Group which contains all precincts.

Component Limitations:

Paper Ballot Limitations

1. The paper ballot code channel, which is the series of black boxes that appear between the timing track and ballot contents, limits the number of available ballot variations depending on how a jurisdiction uses this code to differentiate ballots. The code can be used to differentiate ballots using three different fields defined as: Sequence (available codes 1-26,839), Type (available codes 1-30) or Split (available codes 1-40).

2. If Sequence is used as a ballot style ID, it must be unique election-wide and the Split code will always be 1. In this case the practical style limit would be 26,000.

DS200

1. The ES&S DS200 configured for an early vote station does not support precinct level results reporting. An election summary report of tabulated vote totals is supported.

AUTOMARK Voter Assist Terminal

1. ES&S AutoMARK capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting system. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the AutoMARK system as the maximum capacities of the ES&S AutoMARK are never approached during testing

ElectionWare

1. ElectionWare capacities exceed the boundaries and limitations documented for ES&S voting equipment and election reporting software. For this reason, ERM and ballot tabulator limitations define the boundaries and capabilities of ElectionWare system.

ExpressVote

1. ExpressVote capacities exceed all documented limitations for the ES&S election management, vote tabulation and reporting system. For this reason, Election Management System and ballot tabulator limitations define the boundaries and capabilities of the ExpressVote system as the maximum capacities of the ES&S ExpressVote are never approached during testing.

Election Reporting Manager (ERM)

1. Election Reporting Manager requires a minimum monitor screen resolution of 800x600.
2. ERM Database Create allows 1600 Precincts per Ballot Style.
3. There is a limit of 3510 precincts in the precincts counted/not counted display.
4. There is a limit of 3000 precincts in the precincts counted/not counted scrolling display.
5. Contest/Precinct selection pop up display limited to 3000 contests/precincts.

6. Non-English characters are not supported in ERM. This has to do with the creation of the XML results file out of ERM.

7. ERM's maximum page size for reports is 5,000 pages.

Functionality

2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	No	
Accessibility		
Forward Approach	Yes	
Parallel (Side) Approach	Yes	
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open Standard (provide definition of how supported)	Yes	
Primary: Open Blanket (provide definition of how supported)	No	
Partisan & Non-Partisan:		
Partisan & Non-Partisan: Vote for 1 of N race	Yes	
Partisan & Non-Partisan: Multi-member ("vote for N of M") board races	Yes	
Partisan & Non-Partisan: "vote for 1" race with a single candidate and write-in voting	Yes	
Partisan & Non-Partisan "vote for 1" race with no declared candidates and write-in voting	Yes	
Write-In Voting:		
Write-in Voting: System default is a voting position identified for write-ins.	Yes	
Write-in Voting: Without selecting a write in position.	Yes	
Write-in: With No Declared Candidates	Yes	
Write-in: Identification of write-ins for resolution at central count	Yes	
Primary Presidential Delegation Nominations & Slates:		
Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	No	
Slate & Group Voting: one selection votes the slate.	No	
Ballot Rotation:		
Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	Yes	
Straight Party Voting:		
Straight Party: A single selection for partisan races in a general election	Yes	
Straight Party: Vote for each candidate individually	Yes	
Straight Party: Modify straight party selections with crossover votes	Yes	
Straight Party: A race without a candidate for one party	Yes	
Straight Party: N of M race (where "N">1)	Yes	
Straight Party: Excludes a partisan contest from the straight party selection	Yes	
Cross-Party Endorsement:		
Cross party endorsements, multiple parties endorse one candidate.	Yes	

Feature/Characteristic	Yes/No	Comment
Split Precincts:		
Split Precincts: Multiple ballot styles	Yes	
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	Yes	
Split Precincts: DRE matches voter to all applicable races.	No	
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	Yes	It is possible to list the number of voters.
Vote N of M:	Yes	
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	No	
Vote for N of M: Invalidates all candidates in an overvote (paper)	No	
Recall Issues, with options:		
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	Yes	
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	Yes	
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 2nd contest.)	No	
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2nd contest.)	No	Overturned - US District Court 7/29/03: CA Election Code sect. 11383
Cumulative Voting		
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.	No	
Ranked Order Voting		
Ranked Order Voting: Voters can write in a ranked vote.	No	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	No	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	No	
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	No	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	No	

Feature/Characteristic	Yes/No	Comment
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.	No	
Provisional or Challenged Ballots		
Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in the central count.	Yes	
Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the central count	Yes	
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	Yes	
Overvotes (must support for specific type of voting system)		
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	
Overvotes: DRE: Prevented from or requires correction of overvoting.	No	
Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	Yes	
Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	No	
Undervotes		
Undervotes: System counts undervotes cast for accounting purposes	Yes	
Blank Ballots		
Totally Blank Ballots: Any blank ballot alert is tested.	Yes	
Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	Yes	
Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	Yes	
Networking		
Wide Area Network – Use of Modems	No	
Wide Area Network – Use of Wireless	No	
Local Area Network – Use of TCP/IP	No	
Local Area Network – Use of Infrared	No	
Local Area Network – Use of Wireless	No	
FIPS 140-2 validated cryptographic module	No	
Used as (if applicable):		
Precinct counting device	Yes	DS200
Central counting device	Yes	DS850

Baseline Certification Engineering Change Order's (ECO)

This table depicts the ECO's certified with the voting system:

Change ID	Date	Component	Description	Inclusion
ECO 901	6/23/14	DS850	Datawin firmware change for the bus controller, main motor controller, input tray motor controller, and output motor controller	Non-De Minimis Optional
ECO 910	6/23/14	Steel Ballot Box	Deflector flap needed to guide ExpressVote cards around chute in steel ballot box in conjunction with the DS200	Non-De Minimis Optional
ECO 912	6/02/2014	DS850	Second source UPS for DS850	De Minimis Optional
ECO 913	6/23/14	DS200	Second source battery for DS200	Non De Minimis Optional
ECO 1456	6/23/14	ExpressVote	Second source battery for ExpressVote	Non De Minimis Optional
ECO 1500	6/23/14	ExpressVote	Add scuff pads to housing and increase allowable flatness to kickstand	De Minimis
ECO 1516	6/23/14	ExpressVote	Added new InnoDisk	De Minimis
ECO 1530	6/23/14	DS200	Plastic change to enhance a better fit	De Minimis Optional
ECO 1587	6/23/14	ExpressVote	Updated BOM and drawings to match manufacturer production	De Minimis

Change ID	Date	Component	Description	Inclusion
ECO 1609	6/23/14	DS200 Carry Case	Replaced DS200 mounting rail on carry case	De Minimis Optional