



United States Election Assistance Commission

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Certificate of Conformance

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**Unisyn OpenElect 2.1**



The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the *Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0)*. 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: OpenElect

Model or Version: 2.1

Name of VSTL: Pro V&V

EAC Certification Number: UNS10121966-2.1

Date Issued: October 18, 2019

*Executive Director*

**Scope of Certification Attached**

**Manufacturer:** *Unisyn Voting Solutions, Inc.*

**System Name:** *OpenElect 2.1*

**Certificate:** *UNS10121966-2.1*

**Laboratory:** *Pro V&V*

**Standard:** *VVSG 1.0 (2005)*

**Date:** *10/18/2019*



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## Scope of Certification

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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:

The Unisyn OpenElect Voting System 2.1, herein referred to as OVS 2.1, is a modified system based on the earlier certified OVS releases. The OVS 2.1 Voting System is a paper-ballot based optical scan voting system consisting of five major components:

1. OpenElect Central Suite (OCS)
2. OpenElect Voting Optical (OVO)
3. OpenElect Voting Interface (OVI-VC)
4. OpenElect Voting Central Scan (OVCS)
5. Freedom Vote Tablet (FVT)

The Unisyn OVS 2.1 voting system Technical Data Package (TDP) was the source for much of the information in this document.

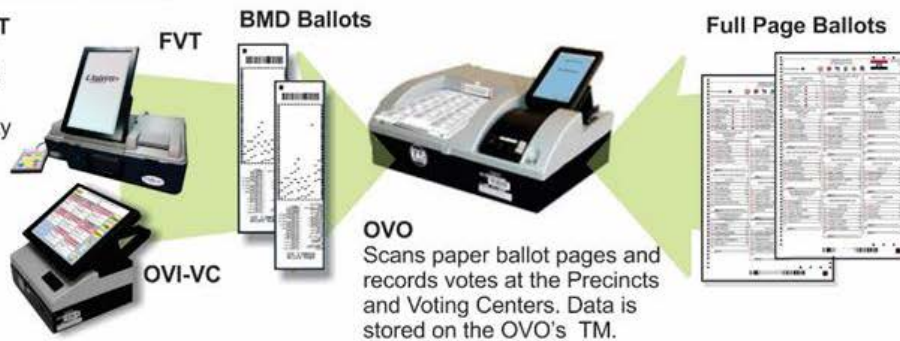
## Pre-Voting - Election Center/Central Count



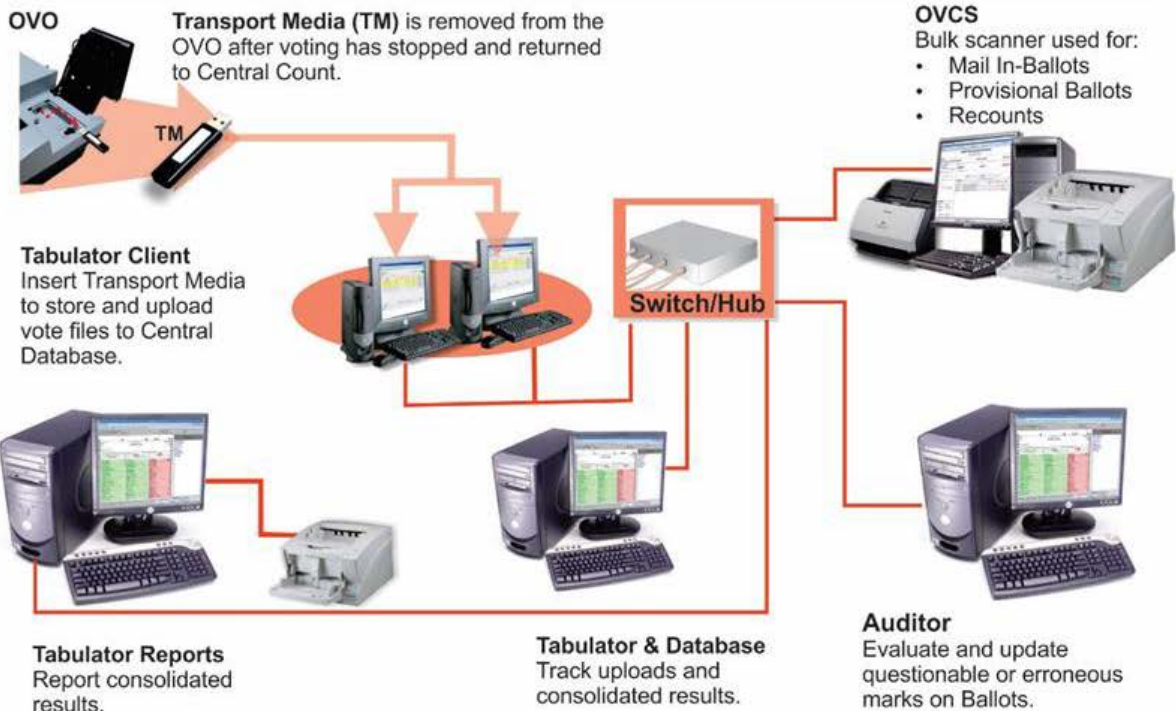
## Voting - Poll Locations

The OVI-VC and FVT are ballot marking devices (BMDs) that produce printed ballots using a variety of Input Devices:

- Touchscreen
- Keypad
- Sip and Puff



## Post-Voting - Election Center/Central Count



### **OpenElect Central Suite (OCS)**

The OCS consists of the six components running as either a front-end/client application or as a back-end/server application: Ballot Layout Manager (BLM), Election Manager (EM), Tabulator Client (TC), Tabulator, Auditor and Tabulator Reports (TR).

### **OpenElect Voting Optical (OVO)**

The OVO device is a precinct-level optical scan ballot counter (tabulator) designed to perform the following major functions: ballot scanning, tabulation, and second chance voting.

The OVO is a full-page, dual-sided optical scan ballot system which scans and validates voter ballots and provides a summary of all ballots cast. The election is loaded from the OVS Election Server over a secure local network or via a USB thumb drive. On Election Day, an OVO at each polling location scans and validates voters' ballots, and provides precinct tabulation and reporting. The OVO unit is also paired with the OVI-VC for early voting to scan and tabulate early voting ballots. OVO units can also be used at election headquarters to read absentee, provisional, or recount ballots in smaller jurisdictions.

### **OpenElect Voting Interface (OVI-VC)**

The OVI-VC supports both ADA and Early Voting requirements. The OVI-VC enables voters during early voting to cast regional ballots and voters with special needs to prepare their ballots independently and privately on Election Day. The OVI-VC unit features a 15-inch full-color touch-screen display. The OVI-VC will present each contest on the correct ballot to the voter in visual and (optionally) audio formats. The voter with limited vision navigates through the ballot using the audio ballot and the ADA keypad or touchscreen input to make their selections. The voter validates his or her selections by listening to the audio summary, printing the ballot, and inserting it into the OVO.

The OVI-VC facilitates special needs voters through a variety of methods including wheelchair access, sip & puff, zoom-in ballot function, and audio assistance for the visually impaired. The OVI-VC provides for write-in candidates when authorized by the jurisdiction. Voters input candidates' names via the ADA keypad, touchscreen or sip & puff device. Each OVI-VC can support multiple languages for both visual and audio ballots, allowing the voter to choose their preferred language.

### **OpenElect Voting Central Scanner (OVCS)**

The OVCS resides at election headquarters designated to read absentee, provisional, or recount ballots in large jurisdictions, or read the entire election's ballots at a central count location in smaller jurisdictions. The OVCS also captures write-in data images and produces a write-in image report for manual processing upon request. The OVCS system consists of the following components: OVCS Workstation and Canon DR-X10C Scanner or a Canon M-160II Scanner.

## **FreedomVote Tablet (FVT)**

The FVT is a tablet ballot marking device that enables voters make their vote selections and to print their voted ballot. It can be used on Election Day or during an early voting period. Like the OVI-VC, the FVT is ADA compliant. It assists voters, with varying levels of ability, through the voting process, ballot review, and printing functions. The FVT presents each contest on the ballot style to the voter in visual and/or audio formats. It facilitates special needs voters through a variety of methods including wheelchair access, sip and puff, zoom-in ballot function and audio assistance for the visually impaired. The voter with limited vision can navigate through the ballot using an audio ballot and the ADA keypad or touchscreen to input their selections. Once the ballot is printed, it is taken to the OVO to be cast. Each FVT can support multiple languages for both visual and audio ballots, allowing the voter to choose their preferred language.

## **Certified System before Modification (if applicable):**

OpenElect 2.0.A

## **Anomalies and/or Additions addressed in OpenElect 2.1:**

### **Auditor (A)**

- Add ability for end user to add a write-in candidate's name in the Auditor application, not only after expiration

### **Ballot Layout Manager (BLM)**

- Allow color for the non-partisan party to be changed
- Added support for a superuser to load a new registration key at any time
- Implemented rotation based on voter registration data, generate a precinct/contest report for all elections, regardless of rotation
- Implemented Decline to State (DTS) function to allow non-partisan voters to select from a list of DTS parties
- Updated ballot design to follow the EAC best practices
- Moved sound scripts to BLM
- Increased button text character limits for the OVO and FVT in order to accommodate translated text
- Translated all voter facing messages for the FVT
- Add the target color, Red or Black, to the Ballot's PDF name
- Changed target color in drop down from 'Grey' to 'Black'
- Target example in header graphics made to match new ballot design
- Increased accuracy of text measurement when comparing against allocated space on ballot for measure and instruction block text
- Changed Election Proof Report to represent full page width instruction blocks and measures

- On the Translation tab, created separate translations for the OVO and FVT for the final voting screen
- Updated Screen Reader introduction hint text to describe method to show and hide the screen in Screen Reader mode
- Option to combine PDF of all printable ballots into a single file
- Ballot text supports inline tags for adjusting font sizes on FVTs
- Allowed dynamic flow across multiple columns for measure text
- Added the ability to have a variable data field in the header that describes the ballot. For example, General Election Ballot or Measures Only Ballot
- Added option for split merging to allow for splits to merge to highest split instead of automatically to parent
- Merge Duplicate Splits offers two ways to roll-up splits by duplicate ballot style in the build process
- Enabled OVO checking of one-time use barcodes
- Allowed contest headers to use up to 1000 characters and support all inline style tags
- Added additional translations for OVO screens such as Ballot Page Not Cast or Ballot Jam
- In the BLM translation table, added the ability to create a blank field or to add the text “No Translation”

### **Election Manager (EM)**

- Added readme file to election export to allow identification of election without having to decrypt files
- Added an option to the Election Manager’s Common Options screen to print the candidate with the most votes in a contest in bold on the OVO and OVCS tally report
- Increment the EM portion of the election parameter version number when EM party icon is changed
- Moved sound script management interface to the BLM to avoid moving between two applications to correct/test sound files
- Include ballot style listed on QR barcode when election is exported by ballot style
- Adjust election version number when machines list in election are changed to allow better detection
- Allow user to select font size layout for the text on the Precinct Barcode Report
- Enabled sound script editing
- Enabled Audio Script report button regardless of “Require Sound Files” option
- Allowed custom image on Thank You screen
- Implemented new TM USB handling with secure delete of files and signed Unisyn\_tm.vol file and clear previous messages
- Created election\_info.txt file to contain election settings for reference without decryption
- Removed ambiguous letters and numbers, such as I and O, from auto-generated passwords (however, the election password entered by a user is not require to follow this rule)
- Removed ‘Enter Alert Report Header Title’ from OVO options screen; this text can be customized in the BLM Translations screen

## FreedomVote Tablet (FVT)

- Handle formatting tags in the instruction blocks
- Added the ability to perform a diagnostic test on the Text-to-Speech function
- Added system application API to allow the date and time to be changed from within the FVT application
- Added Election Type, Straight Ticket Type, Retraction ID (if set), Stub ID (if set), and Android Build Number to the Machine Info Report
- Allow custom image on Thank You screen
- Added support of the use of mixed case (first letter capitalized, rest lower case) in accordance with best practices
- Changed write-in entry screen's BACK button action to a cancel function
- Decline to State (DTS) functionality
- Skip invalid machine key files during setup
- Translate voter facing messages
- Updated FVT Star printer driver
- Updated "Machine Type" from BMT to FVT on Machine Info screen
- Updated sound play handling to be more extensible (if a secondary language sound file does not exist it will default to the English sound file)
- Changes 'Done' and 'Print' buttons on the screen to green color
- Removed picture of phone with barcode on Main and Start screens
- In Diagnostics Auto Test, when Cancel button pressed, show a confirmation message (yes/no) to exit
- Display Android build version on the Machine Info Screen and Machine Info Report
- Added FVT application validation/verification handling
- Adjust color contrast on FVT as suggested by accessibility group
- On the FVT ballot screen, the 'Done' and 'Print' buttons are not available until the voter is required to use them
- Added process to delete the previous election in the event that the FVT was stored with an election still loaded and the password has been misplaced
- Fixed defect where header border not drawing correctly in screen group
- Improved spacing on initialization barcode ticket and added formatting options that have been set
- Use PNG images for button on the bottom of the voting screen
- Changed alert indicator color for undervotes and no selection on summary screen from red to yellow
- FVT locks out all desktop access. The only user with access is a Supervisor who has access to the special file in place on a Unisyn provided TM, in addition to requiring password
- Updated FVT to enable system power off feature
- Machine keystore password should be updated on install to be device specific
- Updated TM file cleaning process to a secure delete
- Text associated with blank candidate entry is displaying twice with Formatted Description only layout
- Removed ability to change machine name on setup screen
- Ballot text needs to support inline size tags for varied sizes in a single block



- Allow provisional ballots to be printed on the FVT
- Enabled OVO checking of one-time use barcodes for better security
- Allow the 'Done' button text on the FVT final voting screen to be changed in the BLM translations, for example the text could be 'Review'
- Headers are increased (reference BLM)
- Redesigned the layout of the Settings screen to improve its usability (the more often used font size options were moved to the top of the screen)

### **OpenElect Voting Interface (OVI-VC)**

- Implemented 'Decline to State' function, which allows a non-partisan voter to select from a valid list of DTS parties
- Sound played after the ballot is printed is in the language selected
- Handle formatting tags in instruction blocks
- Allow translation for multiple screen header text, such as ballot title, summary title, and instruction title

### **OpenElect Voting Central Scan (OVCS)**

- Add ability to enter custom names for OVCS sessions
- Allow export of OVCS session data to a TM for upload with the TC
- Adjust the definition of a mark and implement changes to support
- Add option to print in bold the candidate with the most votes in a contest on the tally report
- Process two column ballots with and without RCV with separate definition to improve performance
- Rotate the BMD full ballot image display in the write-in report to make it more readable
- Update TM file cleaning process to secure delete
- Recognizes FVT provisional ballots as provisional "P" ballots and not as BMD "D" ballots and handles accordingly
- Upload button is disabled after sorting any column in descending order in session list

### **OpenElect Voting Optical Scan (OVO)**

- Add option to print in bold the candidate with the most votes in a contest on the tally report
- Create report which shows precinct count totals while the voting session is open
- Adjusted the definition of a mark and implemented changes to support
- Upgraded the OVO printer drivers to fix the "Printer is not connected" message after the printer paper has been changed
- Improved file cleaning process for TMs to ensure that all files are securely deleted
- Recognizes FVT provisional ballots as provisional "P" ballots and not as BMD "D" ballots and handles correctly
- Recognizes the FVT's Ballot Verification Number (BVN) in the second barcode on an FVT ballot to prevent ballots from being cast a second time



### **Tabulator (TAB)**

- Implemented Single Transferable Vote handling
- Allows automatic blanking of “0” in voter registration field
- Added “Elimination Only” option for RCV multiple seats method
- Appends number of votes required to win (vote threshold) value to end of contest title in RCV tally report
- Added clarity to how RCV results are calculated for the exhausted ballots
- When “Multiple Deletions” is selected for tie breaking, if multiple deletion during tally process leads to continuing candidate less than seat number, automatically switch to manual elimination (eliminate one at a time)
- Voter registration totals entered by party
- Voter registration totals entered by parent or child
- Increased maximum manual entry value from 5,000 to 10,000

### **Tabulator Reports (TR)**

- Added option to print in bold the candidate with the most votes in a contest on the tally report
- Ensures that long contest titles are displayed on report
- Handles voter registration totals entered by party
- When saving a report, the selected file format’s extension (PDF or HTML) is automatically added to the end of the file name

### **Tabulator Client (TC)**

- Handles OVCS session data to be uploaded from TM
- Improved file cleaning process for TMs to ensure that all files are securely deleted

### **All OCS Applications**

- Change ‘X’ icon on dialog box to perform cancel function instead of ‘OK’ function
- Handles formatting tags in the instruction blocks
- Updated Windows favicon to display the correct application logo instead of the default Java logo
- Displays more specific error message when an expired registration key is selected
- When the ‘Print’ button is selected for reports, it will first save the report to a file and then print the report
- Allows special characters for all OCS application passwords

### **OCS Installer**

- Prevents the 2.1 OVS application release from being installed on EOS 1.1 (CentOS 5.7) systems

### **Mark Definition:**

The Unisyn OpenElect system will consistently recognize a 60% fill of the target area. Marks must be made with a marking device with sufficiently low reflectance in the visible red band and is of sufficient density/color such that the scanner registers it as black. Most blue, black and green ballpoint pens and markers also meet necessary reflectance requirements and may be used.

### **Tested Marking Devices:**

- BIC Grip Roller
- EF Felt Tip Pen

### Language Capability:

System supports Hindi, Chinese, English, Japanese, Korean, Navajo, Spanish, and Thai as well as bilingual (Spanish and English).

### Components Included:

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

#### COTS Software Components:

FVT, OVO, and OVI-VC Device Software	Version
CentOS Linux (OVO and OVI-VC)	6.3
Java JRE + Unlimited Cryptographic Extension	1.6.0_02
Android OS (FVT)	4.4.4

OCS and OVCS Device Software	Version
CentOS Linux	6.5, 6.8, 7.6
Java JRE + Unlimited Cryptographic Extension	1.6.0_02
Apache-Tomcat Application Server	6.0.13
MySQL Database (BLM, EM, A, and Tab only)	5.0.45-7
JasperReports	2.0.5
OpenVPN	2.4.4
OpenSSL	1.0.1f
OpenSSL FIPS Object Module	2.0.10 (cert #1747)

#### COTS Hardware Components

Hardware	Make	Model
Duplex Ballot Scanner	PDI Scan	Pagescan III
Scanner Power Adapter	eUrasia Power	uA36-1024
58mm Thermal Printer	Citizen Printer	CT-5281
Printer Power Adapter	Citizen Printer	28AD4
Chassis	Morex	Morex 2699
DC/DC converter	Morex	MX-0608F
Chassis Fans	Young Lin Tech	DFB404012M
Motherboard	Jetway	JNF9D-2550
Memory	SuperTalent – Onboard RAM	W1333SA2GV
Hard Drive	Western Digital	WD5000AZLX
AC Adapter	EDAC	EA 10951c-120
1Gb USB	Innodisk	DEUA1-01G172AC1SB-B088

Hardware	Make	Model
1 Gb USB	Delkin	UY0GTFLSY-XN000-D
7" LCD Touchscreen Display	Xenarc Technologies	700TSV
AC Power In Module	Delta	Emi 10BEEG3G
Sip and Puff (optional)	Origin Instruments	AirVoter
Headphone (optional)	Koss On-Ear Headphones	KPH5
15" LCD Touchscreen Display	GVision	P15BX-OB-4690
82.55mm Thermal Printer	Star	TSP743IID-24, serial interface
Printer Adapter	Star	PS60A-24B 1
Large Volume Scanner	Canon	DR-X10C
Desktop Scanner	Canon	DR-M160II
13.3" Touchscreen Tablet	Android Tablet	GVision-T13
Tablet Battery Charger	Sager Power System	GC30B-4P1J
Barcode Reader 1D, 2D series	Newland	FM420
USB Hub	D-Link	DUB-H4
Hub Adapter	Meanwell	PSD-15A-05
Micro SD	San Disk	4 GB Edge
Battery Pack 12V 6.0 AH	Powers Sonic	PSH-1255-FR
Adapter	Meanwell	GC30B-4PIL
USB to Ethernet RJ45 Adapter	D-Link	DUB-E100
UPS, Minuteman Power Technologies	Para Systems, Inc.	Entrepid Series
Desktop for non-redundant solutions	Dell	OptiPlex 360, 755, 7010, D075/XE2
Desktop for redundant solutions	Dell	Precision T3500, T3600, T5810, T5820, 3420
Laptop	Dell	Dell Latitude E5500, E5540, E5570, E5590, E5500 v2 Dell XPS m1530 HP 2000

### System Limitations

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

Characteristic	Limiting Component	Limit	Comment
Maximum Elections	BLM	8	
Maximum Precincts	BLM	2000	
Maximum Splits per Precinct	BLM	9	
Maximum Districts	BLM	400	
Maximum Contests per District	BLM	20	
Maximum Parties	BLM	24	

Characteristic	Limiting Component	Limit	Comment
Maximum Parties in primary	BLM	12	
Maximum Parties w/ Straight Ticket	BLM	12	
Maximum District types	BLM	25	
Maximum Languages	BLM	15	
Maximum Ballot styles per Election	BLM	400	
Maximum Contests per Election	BLM	150	
Maximum Measures per Election	BLM	30	
Maximum Instruction Blocks per Election	BLM	5	
Maximum Headers per Election	BLM	50	
Maximum Candidates per Election	BLM	3000	
Maximum Candidates per Contest	BLM	120	
Maximum Ballot Pages	BLM	3	
Maximum Votes for N of M	BLM	25	
Maximum Ranks in RCV	BLM	3	
Maximum Ballot sheets per OVO	BLM	5000	
Maximum Ballot Pages per batch (OVCS)	OVCS	500	
Maximum Ballot Pages per session	OVCS	5000	
Maximum expected scanning speed (ballot pages per hour)	OVCS	2100	
Maximum Units simultaneously loading	BLM	20	
Maximum Precincts initialized per OVO on Election Day	BLM	30	
Maximum Precincts initialized per OVI-VC/FVT on Election Day	BLM	2000	
Maximum Precincts initialized per OVO/ /OVI-VC/FVT in early voting	BLM	2000	
Maximum 11" Ballot positions without Rank Choice Voting	BLM	228 (without Rank Choice Voting)  456 (with Rank Choice Voting)	Limit (Double Sided)
Maximum 14" Ballot positions without Rank Choice Voting	BLM	300 (without Rank Choice Voting)  600 (with Rank Choice Voting)	Limit (Double Sided)

Characteristic	Limiting Component	Limit	Comment
Maximum 17" Ballot positions	BLM	372 (without Rank Choice Voting)  744 (with Rank Choice Voting)	Limit (Double Sided)
Maximum 19" Ballot positions	BLM	420 (without Rank Choice Voting)  840 (with Rank Choice Voting)	Limit (Double Sided)

## Functionality

### 2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	No	Not applicable
Accessibility		
Forward Approach	No	
Parallel (Side) Approach	No	
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open Standard (provide definition of how supported)	Yes	A registered voter may vote in any <i>party primary</i> regardless of his own party affiliation
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	

Feature/Characteristic	Yes/No	Comment
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.	No	
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	Yes	
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	Top to Bottom by Precinct grouping
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	
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	
Vote N of M:		
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	Yes	
Vote for N of M: Invalidates all candidates in an overvote (paper)	Yes	
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	

Feature/Characteristic	Yes/No	Comment
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 <sup>nd</sup> 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 2 <sup>nd</sup> contest.)	No	
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.	Yes	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	Yes	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	Yes	
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	Yes	
Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	Yes	
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.	Yes	
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	No	
Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	Yes	
Overvotes (must support for specific type of voting system)		



Feature/Characteristic	Yes/No	Comment
Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	Supported. Overvotes are tabulated for each office as an Over / Under Vote report in Vote Tabulation
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.	No	
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	Supported. Undervotes are tabulated for each office as an Over / Under Vote report in Vote Tabulation
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	
Display/Printing Multi-Lingual Ballots		
Spanish	Yes	
Armenian	Yes	
Alaska Native (Other Group specified)	No	
Aleut	No	
Athabascan	No	
Eskimo	No	
Native (Other Group Specified)	No	
Cambodian	Yes	
Chinese (Cantonese and Mandarin)	Yes	
Filipino (Tagalog)	Yes	
Japanese	Yes	
Korean	Yes	
Russian	Yes	
Vietnamese	Yes	
Apache	No	
Cent/So American	No	
Cheyenne	No	

Feature/Characteristic	Yes/No	Comment
Chickasaw	No	
Choctaw	No	
Navajo	No	
Other Tribe-Specified	No	
Paiute	No	
Pueblo	No	
Seminole	No	
Shoshone	No	
Sioux	No	
Tohono O'Odham	No	
Tribe not specified	No	
Ute	No	
Yaqui	No	
Yuman	No	
Demonstrates the voting system capability to handle the designated language groups		
Default language (English)	Yes	
Secondary language using a Western European font	Yes	
Ideographic language (such as Chinese or Korean),	Yes	
Non-written languages requiring audio support	Yes	