



United States Election Assistance Commission

Certificate of Conformance



Hart Verity Vanguard 1.0

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 2.0 (VVSG 2.0)*. 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: Verity Vanguard

Model or Version: 1.0

Name of VSTL: SLI Compliance

EAC Certification Number: HRT-VV-1.0

Date Issued: July 3, 2025

Brianna Schletz, Executive Director

Scope of Certification Attached



Scope of Certification

Manufacturer: *Hart InterCivic*
System Name: *Verity Vanguard 1.0*
Certificate: *HRT-VV-1.0*
Laboratory: *SLI Compliance*
Standard: *VVSG 2.0*
Date: *January 30, 2026*

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Version History

Version Number	Description of Changes	Date
1.0	Initial release	07/07/2025
1.1	Updated software to match test report and system technical data package	01/30/2026

Introduction

This document describes the scope of the validation and certification of the **Hart Verity Vanguard 1.0**. 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 component of a certified system is certified for use outside the certified configuration.

Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless they have 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 Hart InterCivic Verity Vanguard 1.0 voting system is a paper-based voting system encompassing both precinct and central count tabulators, as well as a Ballot Marking Device (BMD) and an all-in-one accessible voting unit. All polling place devices are equipped with components compliant with the Americans with Disabilities Act (ADA). The Vanguard software ecosystem comprises four primary components: Vanguard Define, Vanguard Deploy, Vanguard Capture, and Vanguard Results. Each server and standalone workstation contain three essential utility applications: Manage, Users, and Settings. Additionally, there are three supplementary applications available upon unlocking: Libraries, Test Decks, and Ranked Choice. The Vanguard voting devices supported within this system include Vanguard Boost, Vanguard Flex, Vanguard Adapt, and Vanguard Vault devices.

Components Included:

The **Verity Vanguard 1.0** system represents a set of software applications for pre-voting, voting and post-voting election project activities for jurisdictions of various sizes and political division complexities.

Vanguard Define is a component of the Verity Vanguard voting system used by election officials to enter election data for contests, candidates, proposition text, translations, and audio. Vanguard Define also provides the user with controls for proofing of data and layout and performs validation prior to locking the data to ensure its readiness for use in Vanguard Deploy, the election definition software.

Vanguard Deploy is used by officials to complete pre-voting tasks for creating and generating an election definition, device user Security Tickets, and ballots. Vanguard Deploy provides a ballot layout proofing process. The process establishes relationships between election data, jurisdiction, and polling place data, for the shared election definition. Vanguard Deploy will create the portable media, vDrives, to provide a method of transferring the shared election definition to Verity Vanguard voting devices and workstations.

Vanguard Capture is a central device used by officials for paper ballot scanning, contest resolution, and conversion of voter selection marks to electronic Cast Vote Records (CVRs). Once the CVRs are written to vDrive(s), they can be transferred into Vanguard Results for vote tabulation and reporting of election results. Vanguard Capture records cast vote records only; it does not tabulate. The scanner can optionally print a unique identifier to the ballot following scanning.

Vanguard Results is used by officials to complete post-voting functionality to tabulate election results and generate reports. Vanguard Results receives the CVRs from portable media devices (vDrives) used to record CVRs from Vanguard Vault devices or Vanguard Capture workstations. Vanguard Results can be used by officials to resolve Vault or Vanguard Capture write-in votes for paper ballots that were manually marked. Vanguard Results can also be used to collect and store all

election logs from every Verity Vanguard device used in the election, allowing for complete election audit log reviews.

Vanguard Manage is available only within server and standalone workstation software applications. This software enables authorized users to add, copy, import, export, archive, restore, and manage elections. Once an election is added or imported in the Election Management application, the election can be opened and handled per the features available within the Verity software installed on that workstation.

Vanguard Users enables authorized users to create and manage user accounts within the Verity system.

Vanguard Settings application is used to perform additional workstation functions such as setting the clock and exporting file hashes.

Vanguard Libraries allow users to save translations and audio from any Vanguard election and use them in future elections. Translations and Audio in Vanguard Libraries can be imported into any election in the Vanguard Define application on the same workstation.

Vanguard Test Decks allows users to generate a pre-marked set of ballots (a "Test Deck") that can be used for Logic and Accuracy Testing of the Vanguard voting system. Vanguard Test Decks allows users to select a marking pattern and generate a test deck which is then available to print and/or export within the Vanguard Deploy software application.

Vanguard Ranked Choice allows users to perform tabulation of ranked choice contest results that have been read into Vanguard Results.

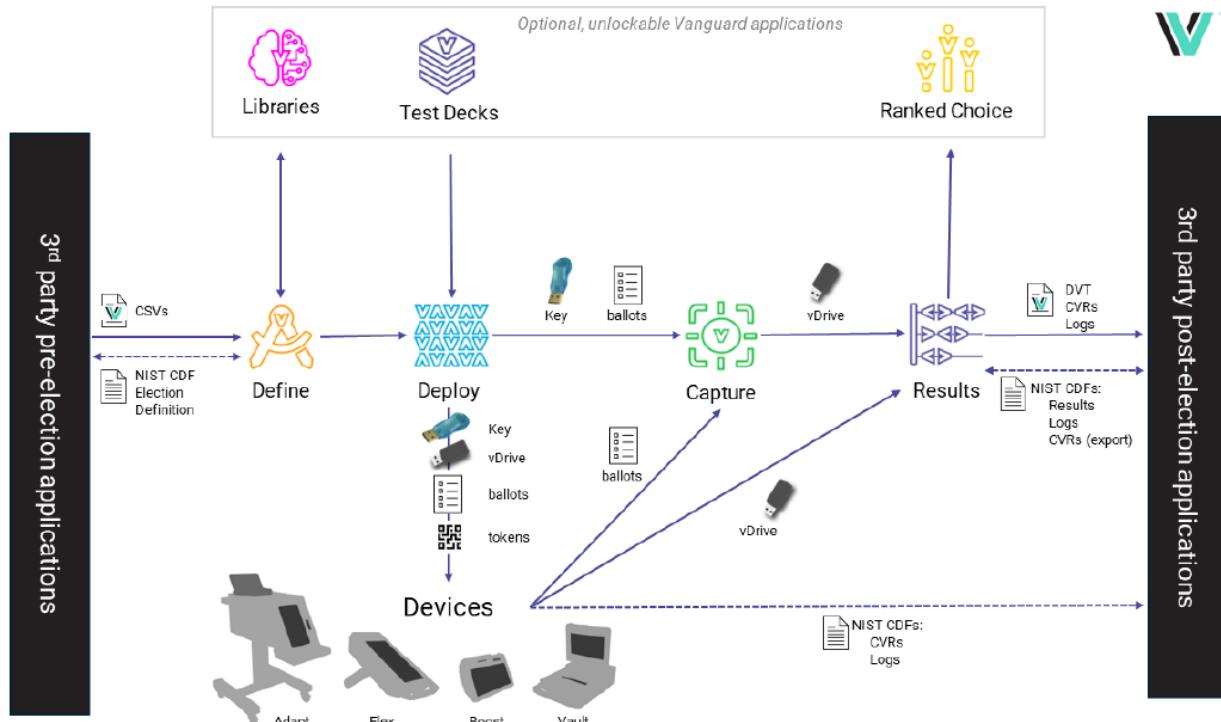
Vanguard Boost is a poll worker-facing device designed to improve voter service by optimizing ballot issuance in the polling place. Vanguard Boost can be utilized by poll workers in two ways. Vanguard Boost may be used to print blank paper ballots on demand, using an attached ballot printer. Vanguard Boost may also be used to issue VotePasses, which allow voters to access, mark, and print a printed vote record using Vanguard Flex. Vanguard Boost does not store vote data.

Vanguard Flex is a universal ballot marking device that produces an auditable summary ballot of a voter's choices that does not encode voter selections in barcodes or QR codes. Voters can mark their ballots using the touchscreen interface or a wide variety of accessible controls. Printed summary ballots are then scanned in Vanguard Vault for tabulation.

Vanguard Vault is a polling place scanning device that captures voter choices whether using ballots marked by hand or machine, including summary ballots [printed vote records (PVRs)] which are counted using Optical Character Recognition. Vanguard Vault can print a unique identifier to the ballot following scanning using an optional purpose-built Imprinter.

Vanguard Adapt is an all-in-one voting device that produces an auditable, summary ballot of a voter's choices. Voters can mark their ballots using the touchscreen interface or a wide variety of accessible controls. Vanguard Adapt enables voters to mark, verify, and cast their ballot, all without touching a piece of paper.

System Diagram



Proprietary Software

System Component	Software or Firmware Version
Vanguard Define (Pre-election EMS)	1.0.1
Vanguard Deploy (Pre-election EMS)	1.0.1
Vanguard Capture (Central Scanning)	1.0.1
Vanguard Results (Post-election EMS)	1.0.1
Vanguard Manage (EMS)	1.0.1
Vanguard Ranked Choice (EMS)	1.0.1
Vanguard Libraries (EMS)	1.0.1
Vanguard Test Decks (EMS)	1.0.1
Vanguard Boost (Polling Place Ballot Issue)	1.0.1
Vanguard Flex (Polling Place BMD)	1.0.1
Vanguard Vault (Polling Place Scanner)	1.0.1
Vanguard Adapt (Polling Place all-in-one accessible voting device)	1.0.1
Imprinter Firmware	REV 7

Touch Sensor Firmware	REV 19
Verity Access Firmware	1.0.1
Main MCU Firmware	REV 47

Proprietary Hardware

Description	Version
Vanguard Vault (Precinct Scanner with optional Imprinter)	A
Vanguard Flex (Ballot Marking Device (BMD))	A
Vanguard Adapt (All-in-one accessible voting device (Limited Dexterity Mark, Verify, and Cast) device)	A
Vanguard Boost (Ballot Issuance Device)	A

COTS Software and Firmware

Manufacturer	Description	Version
Workstations		
Brother	Brother HL-L6400DWVS Printer Driver	1.8.168.8
Canon	DR-G2000 Series Driver	1.1.11807.24001SP2
empira Software GmbH	PDFSharp	1.50.5147.0
HP	HP LaserJet Pro 4001 4002 4002 4004 PCL 6	8.00.2101.9302
Intel	Integrated Performance Primitives	2021.5.3.585
Intel	Z2G9 Intel Graphics	31.0.101.4502
IntoPrint	SP1360(PCL6) Driver	1.0.0.0
Maxim	1-Wire Driver	4.1.0
McAfee	McAfee Application Control for Devices ("Solidifier")	8.3.5.126
Microsoft	.NET Framework Runtime	4.8.1
Microsoft	Devcon	6.1.7600.16385
Microsoft	Help Viewer	2.3.28307
Microsoft	SSRS - SQL Server Standard 2019	15.0.8270.42049
Microsoft	Microsoft SQL Server Standard 2019	15.0.4316.3
Microsoft	Unity	2.1.505.2
Microsoft	Visual Studio C++2013 Redistributable x64	12.0.30501.0
Microsoft	Visual Studio C++2013 Redistributable x86	12.0.30501.0
Microsoft	Visual Studio C++ 2015-2022 Redistributable x64	14.36.32532.0
Microsoft	Visual Studio C++ 2015-2022 Redistributable x86	14.36.32532.0
Microsoft	Windows 10 Enterprise 2021 LTSC, configured for kiosk operation	10.0.19044

Neodynamic ARL	Barcode Professional	11.0.23.223
NVIDIA	Z4G4 NVIDIA Graphics Driver	31.0.15.2748
NVIDIA	Z4G4 NVIDIA HD Audio Driver	1.3.39.16
OKI Data	OKI C844 (PCL)	1.0.0.0
OKI Data	OKIWinIO	1.8.2.2
Open Source	Automapper	2.2.0.0
Open Source	Math.NET Numerics	2.6.1.30
Open Source	MVVMLight	4.0.23.37706
Open Source	Naudio	1.7.3.0
Open Source	Nhibernate	3.3.1.4000
Open Source	OTP-Sharp	1.0.0
Open Source	OWdotNET	0.9.0.0
Open Source	SoundTouch	1.7.1.0
Open Source	Tesseract Open Source OCR Engine	4.5.2.411
Open Source	Zxing.NET	0.16.4.0
Open Source	Zxcvbn C#/.NET	7.0.92
Prism Software, LLC	Prism	4.1.0.0
Telerik	Reporting	18.1.24.709
Telerik	UI for WPF	2023.2.606.45
Websupergoo	ABCpdf	12.3.0.0

Devices

Brother	Brother HL-L6400DWVS Printer Driver	1.8.168.8
Brother	brUSBMon Printer Interface, x64	1.0.0.0
Brother	brUSBMon Printer Interface, x86	1.0.1.0
empira Software GmbH	PDFSharp	1.50.5147.0
HP	HP LaserJet Pro 4001 4002 4002 4004 PCL 6	8.00.2101.9302
HP	HP OfficeJet 200 Mobile Series	20.79.1.6738
Intel	Integrated Performance Primitives	2021.5.3.585
Intel	Intel Graphics Driver	31.0.101.2115

Maxim	1-Wire Driver	4.1.0
McAfee	McAfee Application Control for Devices ("Solidifier")	8.3.5.126
Microsoft	.NET Framework Runtime	4.8.1
Microsoft	Brother Ports Driver	01.02.00.00
Microsoft	Devcon	6.1.7600.16385
Microsoft	SQLite	3.45.3
Microsoft	Unity	2.1.505.2
Microsoft	Visual Studio C++ 2015-2022 Redistributable x64	14.36.32532.0
Microsoft	Visual Studio C++ 2015-2022 Redistributable x86	14.36.32532.0
Microsoft	Windows 10 Enterprise 2021 LTSC, configured for kiosk operation	10.0.19044
Neodynamic ARL	Barcode Professional	11.0.23.223
OKI Data	OKI C844 (PCL)	1.0.0.0
Okidata	OKIWinIO	1.8.2.2
Open Source	Automapper	2.2.0.0
Open Source	MVVMLight	4.0.23.37706
Open Source	Math.NET Numerics	2.6.1.30
Open Source	Naudio	1.7.3.0
Open Source	Nhibernate	3.3.1.4000
Open Source	SoundTouch	1.7.1.0
Open Source	OTP-Sharp	1.0.0
Open Source	OWdotNET	0.9.0.0
Open Source	Tesseract Open Source OCR Engine	4.5.2.411
Open Source	Zxing.NET	0.16.4.0
Open Source	Zxcvbn C#/.NET	7.0.92
PDI	PageScan Scanner SDK	7.2.17
PDI	PageScan USB Scanner Driver	4.0.0301.13
PDI	PDIPrintScanCut Driver for TPH850 Printer	4.1.0.0
Prism Software, LLC	Prism	4.1.0.0
SECO	Chipset Device	10.1.19222.8341

SECO	CSME_SW_2306.4.10.0_Consumer	2306.4.10.0
SECO	HID Event Filter	2.2.2.1
SECO	Programmable Services Engine Windows Drivers	1.0.10099.968
SECO	Serial IO	5.123.1.1025
SECO	Smart Sound Technology	10.30.00.7090
Seiko Instruments	SII IFD50x Driver	2.5.0.0
Telerik	Reporting	18.1.24.709

COTS Hardware

Description	Component Type
Vanguard Manage	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Vanguard Define	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
HP 1405-8GV3 8-port	Ethernet Switch
HPE R8R45A 8-port	Ethernet Switch
Vanguard Deploy	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor

Duracell DR660PSS	UPS
EATON 5P1500	UPS
Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
OKI Data C831dn	Color Laser Printer
OKI Data C844dn	Color Laser Printer
OKI Data C911dn	Color Laser Printer
OKI Data C931e	Color Laser Printer
IntoPrint SP1360	Color Laser Printer
HP 1405-8GV3 8-port	Ethernet Switch
HPE R8R45A 8-port	Ethernet Switch
VinPower Digital USBShark-7T-BK	USB Duplicator
VinPower Digital USBDupeBoxES-23T, USBShark-23TBK	USB Duplicator
Vanguard Capture	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
Canon DR-G2110	High-Speed scanner
Canon DR-G2140	High-Speed scanner
HP 1405-8GV3 8-port	Ethernet Switch
HPE R8R45A 8-port	Ethernet Switch
Vanguard Results	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation

HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
HP 1405-8GV3 8-port	Ethernet Switch
HPE R8R45A 8-port	Ethernet Switch
Vanguard Ranked Choice	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
Vanguard Libraries	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Vanguard Test Decks	
HP Z2 SFF G9	Workstation
HP Z4 G4	Workstation
HP P24 G5, P24 G4, P244 monitors	Workstation Monitor
Duracell DR660PSS	UPS
EATON 5P1500	UPS
Vanguard Boost	

Brother HL-L6400DW series	Mono Laser Printer
Brother HL-EX415DW series	Mono Laser Printer
HP LaserJet Pro 4001dn series	Mono Laser Printer
OKI Data C844dn	Color Laser Printer
Duracell DR660PSS	UPS
Motorola/Zebra DS4308	Handheld Barcode Scanner
Zebra Technologies DS4608	Handheld Barcode Scanner
Vanguard Flex	
Motorola/Zebra DS4308	Handheld Barcode Scanner
Zebra Technologies DS4608	Handheld Barcode Scanner
Bausch & Lomb 819007	Handheld Magnifier
Inclusion Solutions 436	Handheld Magnifier
Vanguard Adapt	
Motorola/Zebra DS4308	Handheld Barcode Scanner
Zebra Technologies DS4608	Handheld Barcode Scanner
HP OfficeJet 200 inkjet printer	Printer
Bausch & Lomb 819007	Handheld Magnifier
Inclusion Solutions 436	Handheld Magnifier
Additional COTS Devices	
V7 HA310-2NP	Headphones
Compatible with standard sip-and-puff devices. Tested with Tash 5101	Sip-and-Puff device
AbleNet Dual Jelly Bean Switch	Tactile Switches

Language capability:

Verity Vanguard 1.0 supports the following 19 languages:

English, Spanish, Mandarin Chinese, Japanese, Korean, Khmer, Thai, Vietnamese, Tagalog, Ilocano, Hindi, Haitian Creole, Gujarati, Hmong, Lao, Hawaiian, Cantonese Chinese, Punjabi, Bengali

System Limitations

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

Election Data Limits		Testing Limit/Requirement Z240 or Z4 G4 Systems (all supported workstations except Define/Deploy/Capture/Results combined system)
Languages in a single election	19 (including English)	
Precincts in an Election	3,000	
Splits per Precinct	20	
Total Precincts and Splits in an Election	3,000	
Districts in an Election	400	
Polling Places in an Election	3,050	
Parties in a General Election	24	
Parties in a Primary Election	10	
Contests (including Propositions) in an Election	2,000	
Contest Choices (voting positions) in a Contest	300	
Total number of Contest Choices in an Election (independent from ballot size)	5,000	
Unique write-in values per contest (Vanguard Results)	500	
Unique write-in values per task (Vanguard Results)	40,000	
Election	10	
Tasks per Election (Vanguard Capture, Vanguard Results)	15	
Registered Voters per Precinct (Vanguard Results)	99,999	
Maximum Sheets per ballot	4	
Ballot Stubs per ballot	2	
Scan rate (Vanguard Capture)	8.5"x11": 60 PPM 8.5"x14": 60 PPM 8.5"X17": 50 PPM 8.5"x20": 50 PPM 8.5"x22": 50 PPM 11"x17": 40 PPM	
Scan rate (Vanguard Vault)	PVRs: Up to 6 PPM for PVRs (any size) Standard Ballots: Up to 8 PPM for 8.5"x11", decreases linearly to 4 PPM for 8.5"x22"	
Ballots per vDrive: Vanguard Vault (1 sheet ballot)	25,000	
Ballots per vDrive: Vanguard Capture	20,000	
Ballots per election: Vanguard Capture & Vanguard Results	1,750,000	
vDrives per election: Vanguard Results	3,050	
Ballot Sizes – Vanguard Deploy, Vanguard Capture, Vanguard Boost, & Vanguard Vault	8.5"x11", 8.5"x14", 8.5"x17", 8.5"x20", 8.5"x22"	
Ballot Sizes – Vanguard Deploy, Vanguard Capture	11"x17"	
Printed Vote Record page size – Vanguard Flex	8.5"x11", 8.5"x14",	
Printed Vote Record page size – Vanguard Adapt	8.5"x11"	

Functionality

VVSG 2.0 Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
System Functionality		
Election creation	Yes	
Closed primary	Yes	
Open primary	Yes	
N-of-M contest	Yes	
Precinct splits	Yes	
Ballot rotation	Yes	
Straight-party contest	Yes	
Cumulative contest	Yes	
Ranked choice contest	Yes	
Party preference contest	Yes	
Top-2 primary contest	Yes	
Presidential delegate contest	Yes	
Proportional voting contest	No	System supports casting, not tabulation.
Group voting contest	No	
Recall contest	Yes	
Top-2 IRV contest	No	
Cross-party endorsement	Yes	
Write-In voting	Yes	
Tabulation		
Provisional or Challenged Ballots	Yes	
Overvotes	Yes	
Undervotes	Yes	
Blank Ballots	Yes	
Devices Supported		
Ballot marking device	Yes	
Precinct Scanner	Yes	
Central count scanner	Yes	
All-in-one device	Yes	