

# **Voting System Certification Evaluation Report**

**Hart InterCivic Inc. (Hart)  
Hart Verity Voting 2.7**



Michigan Department of State  
Bureau of Elections  
Security & Standards Section  
March 18, 2024

## Testing Overview

EAC-certified Verity Voting 2.7 (Hart InterCivic) is a modification of the EAC-certified Verity Voting 2.6 and includes all features and functionality from previous versions, as explained in the System Information section below.

Noted enhancements in Verity 2.7 include the following:

- Transmission of unofficial election results from an external device is permitted via Verity Transmit.
- Verity Count’s Election Dashboard receives a modern design update, with clearer and more prominent display of key election data.
- In Verity 2.7, Verity Data and devices support importable language packs. Elections staff may import additional languages when they become available without the need for a system upgrade.
- Verity 2.7 introduces a new device ballot printer for Verity Touch Writer and Verity Print: The Brother HL-L6400DWVS. In addition to previously supported ballot sizes, Verity 2.7 supports 8.5” x 22” ballots when using the new Brother HL-L6400DWVS printer. Legacy OKI printers are still supported, but the new Brother HL printer is required for 22” ballots.
- Verity 2.7 optimizes data validation to improve scanning performance on the Verity Scan device.
- Secure Boot now is enabled on workstations.
- Full Disk Encryption is now required for all deployments.

## Introduction

### System Information

<b>Manufacturer:</b>	<i>Hart InterCivic</i>	<b>Name of VSTL:</b>	<i>SLI Compliance</i>
<b>System Name:</b>	<i>Verity Voting 2.7</i>	<b>Standard:</b>	<i>VVSG 1.0</i>
<b>Certificate:</b>	<i>HRT-Verity-2.7</i>	<b>Certification Date:</b>	<i>6/7/2022</i>

The Hart Verity 2.7 Voting System was evaluated for certification by the State of Michigan on August 29 -30, 2023. This report summarizes the findings and observations of the testing performed. Testing was performed at the RH Austin Building with the assistance of Bureau of Election’s staff.

Hart submitted their application and all required documentation, including the Technical Data Package (TDP) and system test report. Verity Voting 2.7 was tested to conform to the Voluntary Voting System Guidelines Version 1.0 (VVSG 1.0).

*Verity Voting 2.7 is certified in Ohio (7/22), Oregon (12/22), Pennsylvania (01/23), and New York (01/23).*

### Test Configuration (Components Tested Listed Below with Description)

- |                                  |  |
|----------------------------------|--|
| • <b>Verity Data/Build/Count</b> | Election Management Software (EMS)               |
| • <b>Verity Relay</b>            | Result Transmission (modem/server)               |
| • <b>Verity Touch Writer</b>     | Accessible device and software (VAT)             |
| • <b>Verity Scan</b>             | Digital scanning device and software (Tabulator) |
| • <b>Verity Central</b>          | High-speed digital scanner and software          |
| • <b>Verity Transmit</b>         | Results transmission from external device        |
| • <b>Verity Print</b>            | Paper ballot-on-demand production device (BOD)   |

### Commercial Off-the-Shelf (COTS) Associated with Test Components

Verity Applications – Hewlett Packard (HP) Z240 Workstations or HP Z4 G4 Workstation

Verity Touch Writer - OKI Data B432dn Mono Marked Ballot Printer or Brother HL-L6400 Series Printer

Verity Transmit - 4G MultiTech Modem Model # MTD-MNA1-2.0

Verity Central – High-Speed Scanner Canon DR G1100, Canon DR G1130, Canon DR-G2110, Canon DR-G2140

Verity Relay - 4G MultiTech Modem Model # MTD-MNA1-2.0

### System Overview

Verity Voting 2.7 functions include:

- Defining the political divisions of the jurisdiction and organizing the election with its hierarchical structure, attributes, and associations.
- Defining the election events with their attributes such as the election name, date, and type, as well as contests, candidates, proposal questions, voting locations, and voting location attributes.
- Preparing and producing ballots for polling place and absentee voting.
- Preparing media for precinct voting devices and absent voter counting board tabulation devices.
- Configuring and programming the tabulators for marked paper ballots and Verity Touch Writer printed vote records.
- Configuring and programming the Verity Touch Writer.
- Transmission of the unofficial election results via Verity Transmit.
- Transmission of the unofficial election results via Verity Relay.
- Producing the election definition and reports.
- Import of the Cast Vote Records from Verity Scan devices and Verity Central.
- Preview and validation of the election results.
- Producing election results tally according to voting variations and election system rules compliant with Michigan Election Law.
- Producing a variety of reports of the election results in the user desired format.
- Publishing of the official election results. Auditing of election results including ballot images and log files.

### Verity Voting 2.7 Software and Firmware Versions

System Component	Application(s)	Version
Verity Data	Ballot setup and configuration software	2.7.1
Verity Build	EMS software	2.7.1
Verity Central	High-speed digital scanner software	2.7.1
Verity Count	Central count location accumulation, tallying, and reporting software	2.7.1
Verity Scan	Digital scanner firmware	2.7.1
Verity Touch Writer	BMD firmware	2.7.1
Verity Transmit	Results transfer	2.7.1
Verity Print	Ballot on Demand	2.7.1
Verity Relay	Data transmission software	2.7.1

### Verity Voting 2.7 Hardware Description

- Verity Data provides the user with controls for entering and proofing data and audio. Verity Data also performs validation on the exported information to ensure that it is ready for use in Verity Build.
- Verity Build opens the election to proof data, view reports, and print ballots; allows for configuring and programming the Verity Scan digital scanners, Verity Touch Writer BMD; and allows for producing the election definition and auditing reports.
- Verity Central is a high-speed, central digital ballot scanning system used for high-volume processing of ballots (Absent Voter Counting Board). Verity Central is based on COTS scanning hardware coupled with custom Hart-developed ballot processing application software that resides on an attached workstation.
- Verity Scan is a digital scan precinct ballot counter (tabulator) that is used in with an external ballot box. The unit is designed to scan voter hand-marked paper ballots, Touch Writer-printed ballots, or Verity Touch Writer Duo-printed vote records, to interpret and record voter marks on the marked paper ballot or record voter selections on the printed vote records, and to allow for the deposit of the physical ballots into the ballot box.
- Verity Transmit provides remote transmission capability after the close of polls, utilizing an optional modem, Wi-Fi, or Ethernet accessory kit connected to a device external to Verity Scan or Verity Central. A physical drive with the results from the Verity Scan and Verity Central is inserted into the external device and the unofficial results are transmitted to the Verity Transmit Receiving Station workstation.
- Verity Relay provides remote transmission capability to the Verity Voting 2.7 system. Utilizing an external modem with Verity Scan, after close of polls, unofficial results are transmitted from the polling place device to the Verity Relay workstation after the totals tape has been printed.
- The Verity Touch Writer is a standalone Ballot Marking Device (BMD) which also includes an Audio Tactile Interface (ATI), which allows voters to generate a machine-readable and human readable full faced paper ballot, based on vote selections made, using the ATI or touch screen.
- Verity Print is an on-demand ballot production device for unmarked paper ballots, utilized in early voting sites as authorized by the Michigan Election Law.

Verity Voting 2.7 includes Verity Relay as a component of the configuration certified by the EAC. Other vendors used in the state (Dominion Voting Systems and Election Systems & Software) previously offered a component to transmit unofficial election data from the polling place device after the polls have closed and the results tape has been printed, but those systems were not EAC-certified. In the past, the Board of State Canvassers had certified both EAC-certified and non-EAC certified (but state and VSTL-tested) components. Starting in 2022, BOE began recommending for certification only those polling place device data transmission components that are EAC-certified.

BOE expects that EAC will not certify future polling place device data transmission components that utilize modems for any vendor for systems tested under Voluntary Voting System Guidelines 2.0 (VMSG 2). Verity Voting 2.7 was certified under VMSG 1.0. While VMSG 1.0 systems will not be decertified, BOE expects that voting system vendors will be seeking EAC certification under VMSG 2.0 for future versions. Verity Transmit provides a new option to use a device separate from the polling-place tabulator to transmit unofficial results, which will assist Hart jurisdictions in transitioning away from polling place device data transmission methods that currently utilize a modem to transmit results from the tabulator after the polls have closed.

For more information on the VMSG migration, see <https://www.eac.gov/election-officials/voluntary-voting-system-guidelines-vmsg-migration>.

The Verity Voting 2.7 System utilizes the following COTS Software and Firmware

- Microsoft Windows 10 Enterprise 2019 LTSC (10.0.17763)
- Microsoft SQL Server Standard 2019 (15.0.4153.1)
- Verity Workstation: HP Z4 G4 Workstation
- Printer (VAT & BOD): Brother HL-L6400 Series

Certification Test Plan was prepared by SLI Compliance, a Division of Gaming Laboratories International, LLC, which is accredited by the Election Assistance Commission (EAC). SLI Compliance is an accredited Voting System Test Laboratory (VSTL).

## System Examination/Observations & Findings

2 Precincts from the following types of elections were included in the certification testing:

- State Primary – using 2020 QVF Data (Ecorse City)
- State General – using 2020 QVF Data (Sparta Township)
- Presidential Primary – using 2016 QVF Data (Delta Township)

Y = Results matched State Generated Chart of Predetermined Results

Election	Verity Scan Report (Tape)	Verity Central Report
State Primary	Y	Y
State General	Y	Y
Presidential Primary	Y	Y

All elections were tested using a system generated Election Source Test Deck along with a pre-marked set of test ballots according to the Election Source Chart of Predetermined Results. The Test Decks and charts were reviewed by BOE staff prior to testing to ensure conformity to Michigan Election Law and related Promulgated Rules. Three ballots were substituted and remarked using Bureau-provided test ballots or were reproduced on the Verity Touch Writer and substituted.

Voted ballots were tabulated through the Verity Scan (precinct ballot counter) and Verity Central (central high-speed tabulator) units. The tabulation reports from Verity Scan and Verity Central all matched and were correct.

- Test Outcome – *The observed results were matched to the chart of predetermined results created beforehand. Results matched for all 3 elections tested. Zero tape and zero reports were also run on the equipment before ballots were tabulated.*

Unofficial results modeming using Verity Transmit and Verity Relay was used on one of the tabulators as part of the testing performed above. Precinct 2 on the Scan unit had results transmitted using Verity Transmit (Cellular Modem) and Verity Relay was tested using a different election. Precinct 1 had results transferred using the vDrive media directly into Verity Count.

- Test Outcome – *The observed results of testing were matched to the chart of predetermined results created beforehand and showed that all data was successfully transmitted without any loss or change of results.*

**Verity Scan** – Tape totals matched chart of predetermined results for each election tested.

**Verity Central** - Report totals matched chart of predetermined results for each election tested.

**Verity Touch Writer** - Evaluation showed equipment performed as expected. Various ballots were substituted and tabulated on the Verity Scan units.

**Verity Print** – Evaluation showed equipment performed as expected. System can produce a report of all ballot styles printed and the quantity of each ballot-style for reporting and auditing purposes. The optional AutoBallot Barcode Scanner Kit (2d barcode scanner) was also tested during the certification event.

- Test Outcome – *The devices listed above all performed as expected during the testing.*

### **Additional items**

#### *Ballot Adjudication*

Verity Central (high-speed system) allows for ballot adjudication capability to correct voting errors such as pen rests causing overvotes. If using this function, write-ins are not adjudicated locally; instead, all write-in assignment is done at the county using Verity Count. Detailed adjudication logs are available.

Verity Count can be used at the County Level to adjudicate all write-ins county-wide in preparation for the County Canvass. There is no ability to pass the Write-In data through to the county if adjudicated on the local level.

#### *Automated Test Deck*

Ballot printer and election service provider Election Source can produce a Hart Ballot Test-Deck and chart of predetermined results that meets Michigan Test Deck requirements.

Items for post-certification improvement

The Bureau identified items for Hart InterCivic to improve. The Bureau does not view these as problems that would prevent certification, but should be addressed by the manufacturer as soon as possible.

- The Touch Writer reads the front of ballot, then the back. Some nonpartisan/proposal races came before partisan offices on the back of the ballot, meaning Touch Writer users will vote these races in a different order than paper ballots in some cases (ballot marking and tabulation are not affected).
- With a partisan only ballot (no nonpartisan or proposal section) in an open-primary election, in which multiple party primaries on the ballot, a completely blank ballot scanned into a Scan device will not trigger an under-vote warning (a warning will be triggered if the voter votes in one contest but does not complete all contests). The device should notify a voter who inserted a completely blank ballot to allow for second chance voting.
- Touch Writer has ballot headers on separate screens instead of being included with the contest; the ballot header should be on the same screen as the contest for optimal user experience.

Items previously certified and removed in this version:

- The Verity Touch Writer Duo allows voters to utilize the touchscreen or optional Audio Tactile Interface to generate a machine-readable and human readable printed vote record, based on vote selections made. This is similar to the Verity Touch Writer, but instead of printing a full-faced uniform ballot, it produces a representative ballot with barcodes and text. It was certified in Verity 2.6 but was never deployed in Michigan with no units being purchased.

Items related to the Early Voting process:

- Verity Scan Tabulators can have polls suspended without tabulation between days of Early Voting (EV). The tabulator does not allow an inspector to enter a command for the polls to be closed before 8pm on Election Day, preventing accidental closing of the polls.
- Verity Print Ballot on Demand product can be used to print blank ballots at EV locations to reduce the amount of pre-printed paper ballots required at each location.
- AutoBallot Barcode Scanner Kit can be used to scan a 2d barcode to print the correct ballot-style ballot for each voter when using BOD. A future enhancement to the Early Voting Electronic Poll Book (EV EPB) will allow the scanner to scan a barcode provided by QVF to bring up the correct ballot style for the voter, reducing the chance of error by the precinct worker selecting the wrong ballot-style from the list.

Hart provided test election databases and test ballots so additional testing can be performed if needed. BOE also has blank test ballots and blank ballot stock to perform additional testing once State equipment gets updated. BOE will work with Hart to get State equipment updated.

## Hash Validation Testing

Validating the EAC provided hash values against the values extracted from each piece of test equipment.

Device	Hash Validated
2.6 Central - Z4 G4 workstation	Y
2.6 Controller Device	Y
2.6 Data Build Count - Z4 G4 workstation	Y
2.6 Relay - Z4 G4 workstation	Y
2.6 Scan Device	Y
2.6 Scan with Relay Device	Y
2.6 Touch Writer Device	Y
2.6 Touch Writer Duo Device	Y
2.6 Touch Writer Duo Standalone Device	Y

## EMS Software Testing Procedures

Legal Requirements		Meets Requirements	Comments
<b>Application Requirements</b>			
<b>Data Import</b> Import files and sample ballots (pdf format) for the three election types identified above will be provided to vendors by the Bureau of Elections (BOE) upon receipt of voting system certification application materials. Tests will be performed for Precincts 1 and 2 from each election type.			
1.	Import QVF E-wizard election data output file into EMS database	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	EMS Export data from QVF can be imported into Verity Data. This includes precincts, districts, offices, and candidates for a particular election.
<b>Ballot Layout</b> Ballot layout must follow State of Michigan Ballot Production Standards: <a href="http://www.michigan.gov/documents/sos/Ballot_Product_Standards_8-21-08_246427_7.pdf?20150409083446">http://www.michigan.gov/documents/sos/Ballot_Product_Standards_8-21-08_246427_7.pdf?20150409083446</a>			
1.	Layout a closed presidential primary		
	Democratic ballot with a proposal, including an 'uncommitted' choice that does not rotate	<input checked="" type="checkbox"/> Yes	



		<input type="checkbox"/> No	
	Republican ballot with a proposal, including an 'uncommitted' choice that does not rotate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Nonpartisan ballot	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Rotation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	<b>Layout a primary election ballot</b>		
	Partisan section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Nonpartisan section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Proposal section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Rotation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3.	<b>Layout a general election ballot</b>		
	Partisan section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Nonpartisan section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Proposal section	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Rotation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4.	<b>Produce/Provide PDFs and paper ballots to be used in testing</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Original Test Ballots from print vendor had issues and needed to be re-printed.

## Tabulator Programming

The test process will include demonstration of all programming steps, including:

1.	Create tabulator program for each ballot produced above	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Program for each precinct tabulator (Precincts 1 and 2)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Program for a central count (AVCB) tabulator – (combined Precincts 1 and 2)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	Demonstrate/Create programming of device(s)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3.	Demonstrate loading election definition/programming. Is special media required to load programming? (Security)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4.	Insert memory device into tabulators and print zero tapes (Verify firmware version)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hash validation also performed on equipment.
5.	Use pre-produced ballots and programs to conduct standard logic and accuracy test (test deck to be created by BOE using standard rules)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
6.	Demonstrate voting process on precinct tabulator	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
7.	Demonstrate write-in vote and tabulation processes	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Legal Requirements	Meets Requirements	Comments
<b>Application Requirements</b>		
<b>High-Speed System with Adjudication (Ballot and Write-in)</b>		
NOTE: The test process will include a High-Speed System or a single AVCB tabulator that allows for processing of both Precinct 1 and 2 ballots, including:		
1.	Demonstrate how high-speed system will be programmed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

2.	Demonstrate tabulation process on High-Speed System	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3.	Demonstrate Ballot Adjudication capabilities	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4.	Demonstrate process for obtaining system log information from the device	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5.	Demonstrate vote accumulation and reports showing:		
	Precinct totals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	AVCB totals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Combined totals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

### Accessible Voting Device (VAT) Programming

1.	Create accessible voting device program in EMS without further data input or manipulation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	Verify EMS software has synthesized voice available as standard option	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hart system uses recorded voice as standard option. Synthesized voice files can be done outside the system and used.
3.	Demonstrate voting process on accessible component(s)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4.	Verify VAT ballots are accepted and tabulated correctly by the precinct tabulator	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Touch Writer ballots were marked and tested in Verity Scan.
5.	Demonstrate process for using a phonetic pronunciation in the audio	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
6.	Demonstrate process for obtaining system log information from the device	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Logs are available if vDrives are read into Verity Count (EMS).

## Vote Accumulation/Unofficial Results Transfer

1.	Use the logic and accuracy test totals to transmit into vote accumulation software		
	Direct download	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Modem transmission (cellular) – note vendors must provide network and only EAC approved results transfer will be allowed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Verity Transmit and Verity Relay were tested and results verified.
	Verify totals against numbers from totals tape	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	Cellular modem with active SIM card (if modem transmission is proposed)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## Results Reporting

Legal Requirements		Meets Requirements	Comments
<b>Application Requirements</b>			
1.	Print reports		
	Zero report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Precinct report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Canvass report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Audit report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	% of voter turnout by split	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## Additional Materials to be Provided by the Vendor:

1.	All the necessary EMS software/firmware and hardware with which to conduct the testing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	Update State equipment including EMS workstation and all software/firmware with new version	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	State equipment will be updated.
3.	Cellular modem with active SIM card (if modem transmission is proposed)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Any other required supplies/equipment required to complete all testing specified above	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	A minimum of two tabulators to conduct the testing, along with associated AVCB tabulator (if different than precinct tabulator) and accessible component(s), seals, memory devices and any and all other required components necessary to fully demonstrate the proposed system	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Legal Requirements		Meets Requirements	Comments
<b>Application Requirements</b>			
1.	Blank precinct ballots for Precincts 1 and 2 for creation of the test deck (a minimum of one week prior to the scheduled test date. Ballots must be stubbed and numbered)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Ballots had issues and needed to be re-printed.
2.	Verify maximum number of candidates for a single race	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	300 is the max candidates allowed per contest on a 64GB system. 75 max on 32GB system.

### Electronic Voting System Requirements

Legal Requirements		Meets Requirements	Comments
<b>Application Requirements</b>			
1.	EAC number assigned	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	HRT-Verity-2.7
2.	ITA test report received. MCL 168.795a(1)(a)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Test Report for Verity 2.7 was provided by vendor along with the system documents in the TDP.

3.	Application fee received - \$1500 for new system components, \$500 for upgrades of system components. MCL 168.795a(2)(a)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Check was received.
4.	New source code or changes to source code have been escrowed and made available to Bureau of Elections personnel. MCL 168.797c	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	New escrow account for Hart and State of Michigan was created and deposit was made for Verity 2.7.
5.	<b>New Components:</b> File a report listing all states the components are approved for use in, how long the components have been in use, and any reports complied by users on performance. MCL 168.795a(2)(b)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Verity Voting 2.7 is certified in Ohio (7/22), Oregon (12/22), Pennsylvania (01/23), and New York (01/23).
6.	<b>New Components:</b> File copies of all standard contracts and maintenance agreements used in conjunction with the voting system components. MCL 168.795a(2)(c)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Same as past versions provided.
7.	<b>New Components:</b> State the number of voters each component of the voting system can process per hour in an election with 10 or fewer items to be voted on. MCL 168.795a(2)(e)(i)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Verity Scan: Hart InterCivic estimates that a Scan device can process a letter-size ballot with 10 items on it at a rate of approximately 10 ballots per minute, or 600 ballots per hour, assuming continuous, uninterrupted scanning.</p> <p>Verity Touch Writer: Hart InterCivic estimates that a voter using the Touch Writer BMD to vote a ballot with 10 items on it would require approximately the following amounts of time to vote a single ballot:</p> <p>Touchscreen only: 0.8 minutes per ballot  Access ATI, without audio: 1.3 minutes per ballot  Access ATI, with audio ballot: 3.2 minutes per ballot</p> <p>These rates correspond to the following estimates of throughput per hour, assuming continuous, uninterrupted use of the BMD:</p> <p>Touchscreen only: 75 ballots per hour  Access ATI, without audio: 46 ballots per hour  Access ATI, with audio ballot: 19 ballots per hour</p>

8.	<p><b>New Components:</b> State the number of voters each component of the voting system can process per hour in an election in which the ballot consists of the number of items typically voted on at a presidential general election.</p> <p>MCL 168.795a(2)(e)(ii)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Verity Scan: Hart InterCivic estimates that a Scan device can process a ballot representative of a Presidential General Election in Michigan, assuming approximately 25-28 contests, at a rate of approximately 9 ballots per minute, or 540 ballots per hour, assuming continuous, uninterrupted scanning.</p> <p>Verity Touch Writer: Hart InterCivic estimates that a voter using the Touch Writer BMD to vote a ballot with 25-28 contests on it, assuming straight party voting is not used, would require approximately the following amounts of time to vote a single ballot: Touchscreen only: 2 minutes per ballot Access ATI, without audio: 3.3 minutes per ballot Access ATI, with audio ballot: 8 minutes per ballot</p> <p>These rates correspond to the following estimates of throughput per hour, assuming continuous, uninterrupted use of the BMD: Touchscreen only: 30 ballots per hour Access ATI, without audio: 18 ballots per hour Access ATI, with audio ballot: 7 ballots per hour</p>
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Legal Requirements		Meets Requirements	Comments
<b>BSC Test Requirements</b>			
1.	Provides for secrecy except in the case of voters who receive assistance. MCL 168.795(1)(a)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2.	Permits voters to vote for all persons, offices and questions entitled. MCL 168.795(1)(b)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3.	Informs voter if he or she has overvoted an office and offers voter the opportunity to correct error before counting ballot. MCL 168.795(1)(b)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Verity Scan will warn voter in cases of overvoted offices.
4.	Permits voters to vote for all candidates of a political party by a single selection or to vote a split or mixed ticket. MCL 168.795c	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5.	Permits voter to vote for a party's presidential and vice-presidential candidates with a single vote.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Straight-Party logic was tested

	MCL 168.795(1)(c)		
6.	Informs voter if he or she has cast a crossover vote in a partisan primary and offers voter the opportunity to correct error before counting ballot. MCL 168.795(1)(d)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Scan will warn voters and Touch Writer will prevent crossover voting.
7.	Prevents voter from voting for the same person for the same office more than once. MCL 168.795(1)(7)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
8.	Rejects ballots which do not contain a valid vote. MCL 168.795(1)(f)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
9.	Suitably designed for purpose used; durably constructed; designed to provide for safety, accuracy, and efficiency. MCL 168.795(1)(g)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
10.	Accommodates the needs of the elderly or persons with 1 or more disabilities. MCL 168.795(1)(h)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Touch Writer has ability to assist voters with a range of disabilities.
11.	Accurately records and counts properly cast votes. MCL 168.795(1)(i)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
12.	Provides an audit trail. MCL 168.795(1)(j)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All equipment has audit logs available
13.	Provides an acceptable method for casting write-in votes. MCL 168.795(1)(k)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14.	Allows for the accumulation of vote totals. MCL 168.795(1)(l)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
15.	Provides a method for rendering tabulating equipment inoperable if vote totals are revealed before the close of polls. MCL 168.795(2)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Vote Totals cannot be produced until Polls are closed. Polls cannot be opened or closed until date/time set in EMS.
16.	Presents a ballot printed or displayed in black type on a white surface. MCL 168.795b(1)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Legal Requirements		Meets Requirements	Comments
17.	Allows for display of party symbols; display of titles and candidates' names in vertical columns or in a series of separate pages; and display of the number of candidates to be voted for above or at the side of the names of candidates for each office. MCL 168.795b(1)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
18.	If there are more candidates for an office than can be printed or displayed in one column or on one page, ballot provides instruction that the list of	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Verity Touch Writer will inform voter of additional candidates above or below the screen.



	candidates is continued on the following column, page or display. MCL 168.795b(1)		
19.	If system employs a physical ballot, ballot contains an attached, numbered, perforated stub. MCL 168.795b(2)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Allows for stubs on top or bottom of ballot for Election Day ballots. EV ballots using Verity Print do not require a stub.
20.	Distinguishes various parts of the ballot (partisan, nonpartisan, proposals) and different elections. If practicable, presents each part on a separate page, column, or display. MCL 168.795c	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hart ballot templates use shading gradients for ballot design in accordance with Michigan Ballot Production Standards.
21.	Can be tested as prescribed by law and the rules promulgated by the Secretary of State prior to and after an election to determine if the equipment will accurately count votes cast for all candidates and on all questions. MCL 168.798	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Standard Logic and Accuracy Testing process was performed on equipment.
22.	Can print a zero tape or by other means provides a method of verifying the proper programming and that no ballots have yet been tabulated. MCL 168.797	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Zero Tape on Scan units and Zero Reports for high-speed. EMS can also produce a zero report.
23.	Performs a program of self-diagnostics that allows election workers to verify the proper functioning of the equipment. MCL 168.797	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Field Test (New Precinct Components Only)</b>			
1.	Has been evaluated under a field test designed to gauge election official reactions. MCL 168.795a(3)	<input type="checkbox"/> Yes <input type="checkbox"/> No	NA
2.	Has been evaluated under a field test designed to gauge voter reaction, voter problems, and the number of voting stations required for efficient operation based on the vendor's statement per subsection (2)(e). MCL 168.795a(3)	<input type="checkbox"/> Yes <input type="checkbox"/> No	NA
3.	Field test costs reimbursed or paid for by applicant. MCL 168.795a(2)(d)	<input type="checkbox"/> Yes <input type="checkbox"/> No	NA

## CERTIFICATION OF TESTING

This is to certify that the above-named voting system has successfully met all applicable criteria prescribed under Michigan election law and the Rules promulgated for the administration of electronic voting systems by the Secretary of State. Based on this certification, it is recommended that the above-named voting system be approved for the conduct of elections held in the State of Michigan.

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Election Administration, Manager

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Security and Standards Section, Manager

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Election Security Specialist

## Recommendation

Based on the testing performed by BOE Staff, the Hart Verity 2.7 Voting System is recommended for State Certification.