



United States Election Assistance Commission

Certificate of Conformance

**MicroVote EMS 4.41**



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: EMS

Model or Version: 4.41

Name of VSTL: Pro V&V

EAC Certification Number: MVTEMS441

Date Issued: 09/18/2020

*Mona Harrington*  
Executive Director

Scope of Certification Attached

**Manufacturer:** *MicroVote General Corporation*  
**System Name:** *EMS 4.41*  
**Certificate:** *MVTEMS441*

**Laboratory:** *Pro V&V*  
**Standard:** *2005 VVSG*  
**Date:** *09/11/2020*



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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:

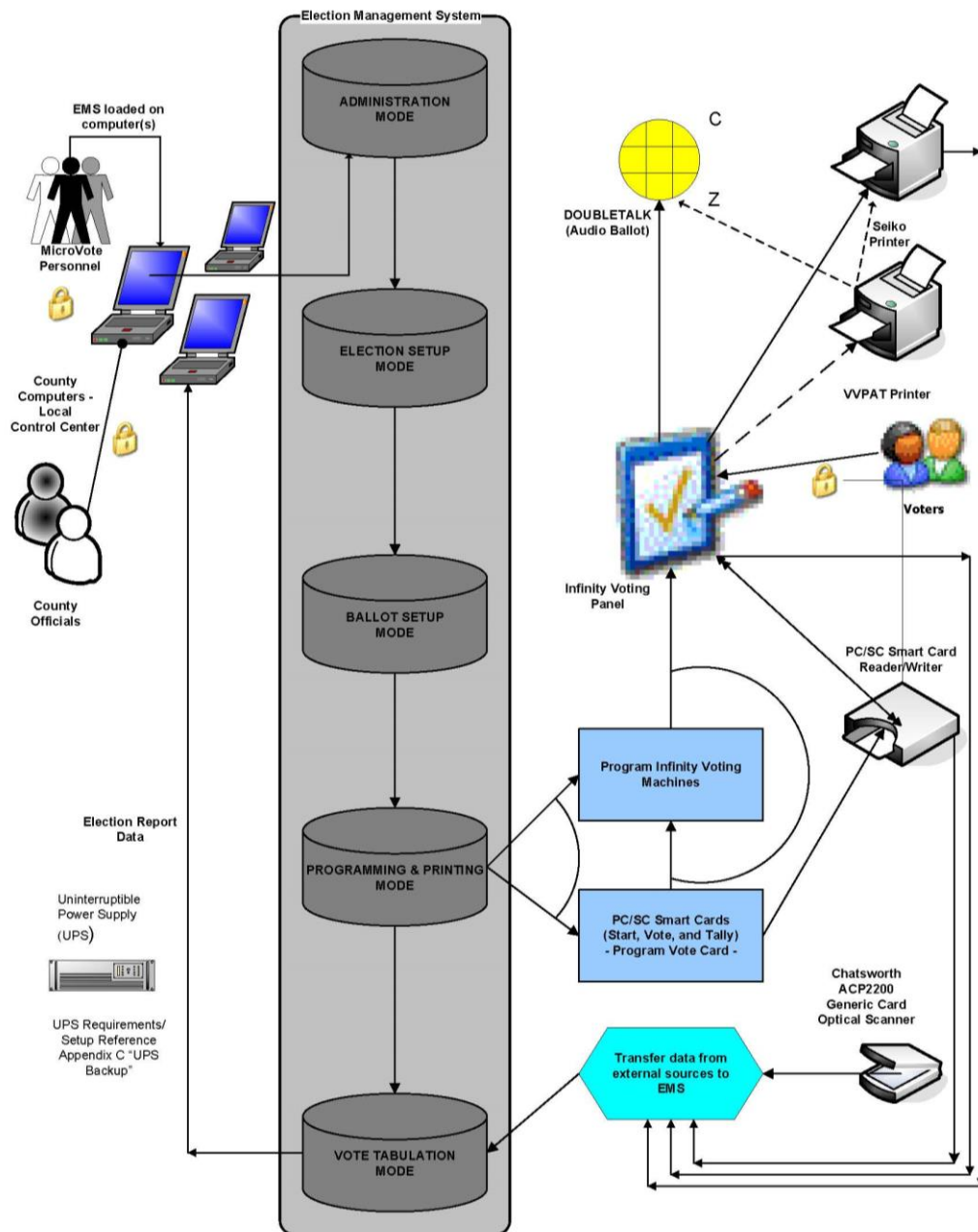
The MicroVote EMS 4.41 software functionality is divided by activity, based on each stage of the election. These activities are further divided into five modes, all building on each other to complete the election process: Administration, Election Setup, Ballot Setup, Programming & Printing, and Vote Tabulation.

The EMS software supports the MicroVote Infinity voting panel. This panel is a direct recording electronic (DRE) device, and is connected to EMS via a serial port. Data/Vote tabulations exchange between the EMS and the Infinity machine is done directly through the serial port or

via a Smart Card programmed for each election. OMR Ballot Cards, sometimes referred to as Absentee Cards, are optically scanned by a Chatsworth ACP 2200 reader.

Several COTS hardware items and software are used with the EMS software. EMS is designed to be used with Microsoft Windows 10 Pro X86/X64, and is installed on a Dell computer desktop and/or laptop. The database software is SQL Server 2017 Express. There is a COTS DOUBLETALK LT text-to-speech converter box attached to the Infinity machine. There are also COTS Smart Cards and Smart Card readers/writers. All OMR/Absentee ballot cards are optically scanned by the ACP 2200 reader.

## System Diagram



## Certified System before Modification (If applicable):

- EMS Release 4.0 Certificate ID: MVTEMS40
- EMS Release 4.0B Certificate ID: MVTEMS40B
- EMS Release 4.1 Certificate ID: MVTEMS41
- EMS Release 4.2 Certificate ID: MVTEMS42
- EMS Release 4.3-A Certificate ID: MVTEMS43A
- EMS Release 4.4 Certified ID: MVTEMS44

## Language capability:

English, Spanish and an optional third language (including pictographic / character 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 Revision	Hardware Revision	COTS Information	Dependency Notes
EMS Software MicroVote 4.4	EMS Software V4.4.8.0	N/A	--	MicroVote EMS 4.4
EMS Server Dell Desktop		Dell Optiplex GX520, 3010, or 3020		MicroVote EMS 4.2
Microsoft SQL Server Express 2017	Express 17		--	
Microsoft Windows 10 Professional	10 Professional ver 1909		--	
Laptop(s) Dell		Dell Latitude E5440, E5570, E5580, 3500		
Infinity Model VP 1 Voting Panel	Firmware V4.3 (Rev D) V4.4 (Rev E)	Rev D or Rev E	--	Rev D – 4.2
VVPAT Printer	N/A	Rev A		
Scanner Dual Sided Chatsworth ACP 2200	N/A	Model 605000- 190	--	All Certified Systems

System Component	Software or Firmware Revision	Hardware Revision	COTS Information	Dependency Notes
Printer Seiko	N/A	COTS Model DPU-414 or DPU-3445	--	All Certified Systems
Doubletalk Model LT3	BIOS0212	V1.0 LT RC8650	--	All Certified Systems
Smartcard Reader		HWP109380 B	PC/SC compatible USB contact reader/writer	MicroVote EMS 4.2
Smart Cards	N/A	16K or 115K	--	
Voting Booth	N/A	Model 2000	--	All Certified Systems
MinuteMan UPS	N/A	EP1000LCD	UPS	
APC Back-UPS Pro	N/A	BN1100M2, BX1000M	UPS	
Hamilton Buhl Headphones	N/A	PRM100B	Headphones	
Head Stick	N/A		Pointer for ADA voters.	

## System Limitations

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

Characteristic	Limiting Component	Evaluated	EMS	Infinity	ACP 2200
Maximum Ballot Positions	Ballot Design Form	150	600	600	402
Maximum Precincts in Election	Precinct Number	600	9,999	9,999	9,999
Maximum Contests in Election	Contests in Ballot Style * Ballot Styles/Election	100	300,000	2,999,700	2,009,799
Maximum Candidates/Counters in Election	Precinct Counters * Total Precincts	300	5,989,401	5,989,401	4,019,598
Maximum Candidates/Counters in Precinct	Ballot Design Form	300	599	599	402
Maximum Candidates/Counters in Activation	Ballot Design Form	300	599	599	402

Characteristic	Limiting Component	Evaluated	EMS	Infinity	ACP 2200
Maximum Ballot Styles in Election	Ballot Style Number	300	1000	9999	1000
Maximum Contests in a Ballot Style	Ballot Design Form	100	300	300	201
Maximum Candidates in a Contest	Ballot Design Form	10	599	599	401
Maximum Count for any Precinct Element	Transact-SQL Bigint	600	See Note 1	65,000	See Note 1
Maximum Ballot Styles in a Precinct	Precinct Style Assignment Form	1	1	1	1
Maximum Activations per Ballot Style	Build Activations Form	25	99	30	99
Maximum Activations per Election	Act/Ballot Style * Ballot Style/Elec	1500	99,000	299,970	299,970
Maximum Number of Parties	Party Code Combinations	10	50,653	598	400
Maximum Vote For in Contest	Office Vote Limit	60	99	64	99

Note 1: 9,223,372,036,854,770,000

## Functionality

### 2005 VVSG Supported Functionality Declaration

Feature / Characteristic	Yes / No	Comment
Closed Primary		
Primary: Closed	Yes	
Open Primary		
Primary: Open - Public Selection A primary election in which voters, regardless of political affiliation, may choose in which party's primary they will vote. Choice of party ballot at the polling place, after which the poll worker provides or activates the appropriate ballot.	Yes	
Primary: Open - Private Selection A primary election in which voters, regardless of political affiliation, may choose in which party's primary they will vote. The voters chooses the party ballot within the privacy of the voting booth.	No	
Partisan Offices		
Handles vote for 1 races	Yes	
Handles N of M races	Yes	

Feature / Characteristic	Yes / No	Comment
Handles partisan contests in a primary election	Yes	
Handles partisan contests in a general election	Yes	
Non-partisan Offices		
Handles vote for 1 races	Yes	
Handles N of M races	Yes	
Handles non-partisan contests in a primary election	Yes	
Handles non-partisan contests in a general election	Yes	
Write-In Voting:		
A separate voting position is identified for write-ins.	Yes	
Write-in for an N of M contest has M write-in positions.	Yes	
Write-in with no candidates (partisan & non-partisan contests)	Yes	
Method to flag write-ins for resolution at central count	Yes	
Primary Presidential Delegation Nominations		
Slates of delegates are displayed for each presidential primary candidate	Yes	Use the Ballot text features to create a slate
Slates of delegates are chosen with one selection.	Yes	
Ballot Rotation:		
Names of candidates rotate.	No	
Straight Party Voting:		
Make one selection to vote for all candidates of one party in a general election	Yes	
Undervote the straight party selection and choose each candidate individually	Yes	
Vote straight party and then change votes to cross over to another party's candidate.	Yes	
Vote straight party for a party without a candidate in one of the races.	Yes	
Votes straight party in an: N of M contest ( N>1)	Yes	
Cross-Party Endorsement:		
One candidate is endorsed by multiple parties.	Yes	Set up the candidate for each party. Manually combine votes in the canvas.
Cross Party Endorsement is supported in straight party contests	Yes	

Feature / Characteristic	Yes / No	Comment
Split Precincts:		
Precincts splits with multiple ballot styles	Yes	
The number of voters are identified for the precinct split.	Yes	
The vote totals are not reported for the precinct split.	Yes	
Ballot faces match the correct contests and ballot identification for each split.	Yes	
The correct contests are presented for the appropriate ballot split.	Yes	
Vote N of M:		
Counts each selected candidate, if less than or equal to "M" candidates are selected. (Overvote if >M)	Yes	
Identifies an undervote if less than "M" candidates are selected.	Yes	
Recall Issues, with options:		
The recall vote is a Yes or No question.	No	
The recall is a vote for 1 of M vote with the Retain one choice and each replacement candidate a separate choice.	No	
Two contests are on the ballot. The voter must vote Yes to a recall in order to vote in the second contest for the replacement candidate. A No, undervote or overvote will not allow a vote in the second contest to be counted.	No	
Two contests are on the ballot. If a voter votes Yes or No they may vote in the second contest for the replacement candidate. An undervote or overvote will not allow a vote in the second contest to be counted.	No	Functionality overturned - US District Court 7/29/03: CA Election Code sect. 11383
Cumulative Voting		
Voting method exclusive to multi-member boards. Each voter may cast as many votes as there are seats to be filled and may cast two or more of those votes for a single candidate.	No	
Ranked Order Voting		
Voters rank candidates in a contest in order of choice (1, 2, 3, etc.)	No	
A write in vote can be ranked.	No	
Tabulation of Ranked Order Votes		
Ballots are sorted according to the 1st ranked choice. If no candidate receives a majority of first ranked choice the candidate with the least 1st ranks is eliminated. Votes are recounted and are distributed to the remaining candidates according to the 2nd ranked choice. If still no candidate has	No	



Feature / Characteristic	Yes / No	Comment
a majority, the candidate with the process repeats to next rank choice s until a candidate has obtained a majority.		
A ballot is no longer counted if all ranked choices have been eliminated	No	
Once candidates are eliminated, no votes can be transferred to them. Ballots being recounted, which identify an eliminated candidate, go to the next ranked candidate.	No	
If a rank is skipped, the vote for the next rank is counted.	No	
<b>Provisional or Challenged Ballots</b>		
Provisional ballots maintain the secrecy of the ballot.	Yes	
A voted provisional ballot, that is not included in the poll close report, can be identified for determination.	Yes	
Valid provisional votes can be added in the central count report.	Yes	
A voted provisional ballot, which is included in the poll close report, can be identified and subtracted in the central count.	Yes	
<b>Secondary Vote Limit</b>		
A voting variation outside the VVSG, which is supported by an additional vote limit that can be placed on grouped contests, so that multiple limits are placed on the vote.	Yes	

## Baseline Certification Engineering Change Orders (ECO)

This table depicts the ECOs certified with the voting system:

Change ID	Date	Component	Description	Inclusion
ECN 130	09/15/20	Dell Laptop	Replace end of life laptop (3500) with current model (Dell Latitude 3510)	DeMinimis