United States Election Assistance Commission

Certificate of Conformance

ES&S Unity 3.2.0.0 Rev 3
Election Systems & Software

2002 VSS
EAC
CERTIFIED

The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the *2002 Voting System Standards (2002 VSS).* 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: Unity

Model or Version: Version 3.2.0.0 Revision 3

Name of VSTL: Wyle Laboratories

EAC Certification Number: ESSUnity3200Rev3

Date Issued: May 16, 2012

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

Scope of Certification Attached

Scope of Certification

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

Significance of EAC Certification

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

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

Representation of EAC Certification

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

System Overview:

ES&S Unity 3.2.0.0 Rev. 3 is comprised of the AutoMARK Voter Assist Terminal (AutoMARK), DS200 Precinct Digital Scanner (DS200), Model 650 high-speed Central Count Scanner (M650), Audit Manager (AM), Election Data Manager (EDM) and ES&S Ballot Image Manager(ESSIM), Hardware Program Manager (HPM), Election Reporting Manager (ERM), Log Monitor Service, and VAT Previewer.

- AutoMARK Voter Assist Terminal enables voters who are visually or physically impaired and voters more comfortable reading or hearing instructions and choices in an alternative language to privately mark optical scan ballots. The AutoMARK supports navigation through touchscreen, physical keypad or ADA support peripheral such as a sip and puff device or two position switch.

- DS200 digital scanner is a paper ballot tabulator designed for use as a polling place scanner. After the voter makes their selections on their paper ballot, their ballot is inserted into the unit for immediate tabulation. Both sides of the ballot are scanned at the same time using a high-resolution image-scanning device that produces ballot images.
- M650 high-speed central count scanner is programmed by jurisdiction officials for a specific election with an election definition from a Zip disk. M650 prints a continuous audit log to a dedicated audit log printer and can print results reports directly from the scanner to a second connected printer. The scanner saves results to a Zip disk that officials can use to format and print results from a PC running Election Reporting Manager.
- Audit Manager runs in the background of the other Unity programs and provides password security and a real-time audit log of all user inputs and system outputs. Election coders use Audit Manager to set Unity system passwords and track user activity.
- Election Data Manager (EDM) is used to enter the election definition. Typically, a master election database is created one time and contains all precincts, districts, and precinct and district relationships. This master file is then used to build each election-specific file to which election-specific contests can be manually added or merged from a previous election file.
- ESSIM is a desktop publishing tool that allows users to design and print ES&S paper ballots. ESSIM uses ballot style information created by EDM to display the WYSIWYG ballots. Users can then apply typographic formatting (font, size, attributes, etc.) to individual components of the ballot. Text and graphic frames can also be added to the ballot.
- Hardware Program Manager (HPM) enables the user to import, format, and convert the election file; define districts; specify election contests and candidates; create election definitions for ballot scanning equipment; burn PC Cards, EPROMS, MemoryPacks or PEBs; and create the Data Acquisition Manager Precinct List. The Hardware Programming Manager is primarily used for converting the election IFC file for use with the Election Reporting Manager and for creating and loading election parameters; however, it may also be used for coding the election.
- Election Reporting Manager (ERM) is ES&S's election results reporting program. ERM generates paper and electronic reports for election workers, candidates, and the media. ERM can also display updated election totals on a monitor as ballot data is tabulated, and it can send results reports directly to media outlets.

Certified System before Modification:

ES&S Unity 3.2.0.0 Rev. 1
Certification Number: ESSUnity3200Rev1

ES&S Unity 3.2.0.0
Certification Number: ESSUnity3200

Anomalies and/or Additions addressed in Unity 3.2.0.0 Rev. 3:

The focus of this test campaign was to test all additions and modifications made to the system's software, hardware and firmware since the certification of Unity 3.2.0.0. Wyle performed full-functional testing on the DS200 with the primary focus on the modifications of the DS200 firmware to fix the anomalies addressed specifically in the EAC's Formal Investigation Report. These include:

- Intermittent screen freezes, the system lockups and shutdowns which prevents the voting system from operating in the manner in which it was designed.
- Failure to log all normal and abnormal voting system events.
- Skewing of the ballot resulting in a negative effect on system accuracy.
- Unresponsive Touch Screen

Mark definition:

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

Tested Marking Devices:
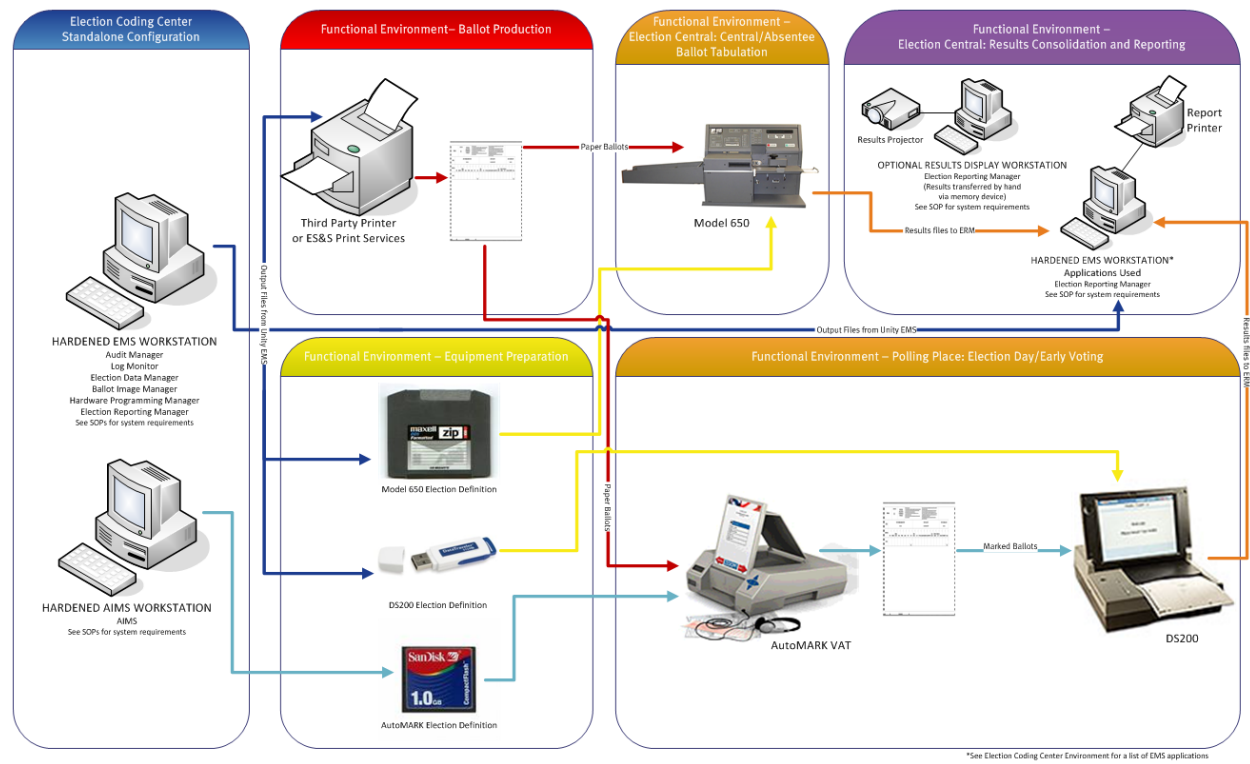
Bic Grip Roller Pen

Language capability:

System supports: English and Spanish.

Components Included:

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

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comments
DS200	1.6.1.0	1.2		Precinct Digital Scanner
Model 650	2.2.2.0	1.1, 1.2		Central Count Scanner, high-speed
AutoMARK A100	1.3.2906	1.0		ADA Ballot Marking Device
AutoMARK A200	1.3.2906	1.1, 1.3		ADA Ballot Marking Device
Ballot Box Hardware		1.2, 1.3		Plastic ballot box
Ballot Box Hardware		1.0, 1.1, 1.2		Metal ballot box with diverter
Audit Manager (AM)	7.5.2.0			
Election Data Manager (EDM)	7.8.1.0			
ESS Ballot Image Manager (ESSIM)	7.7.1.0			
Hardware Programming Manager (HRM)	5.7.1.0			
Election Results Manager (ERM)	7.5.4.0			
Log Monitor Service	1.0.0.0			
AutoMARK Information Management System (AIMS)	1.3.157			
VAT Previewer	1.3.2906			
Server PC		Dell Optiplex GX20		
Server PC		Dell Precision T3500		
Client PC		Dell Optiplex 760		
Ballot on Demand Printer		OKI C9650		
Report Printer		HP LaserJet 4050N		
Zip Disk				Results storage for M650
Headphones		Avid FV 60		

System Limitations

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

Characteristic	Limiting Component	Limit	Comment
Precincts Allowed in an Election	HPM/ERM	2900	1639 if using paper ballot coded by precinct
Precinct included per poll (reporting limit)	ERM	1900	
Candidate/counters per election	ERM	21000	
Maximum candidates	HPM	9900	
Contest allowed in an election	ERM	Depends on election	Limited by 21000 maximum counters
Candidates/counters allowed per precinct	ERM import	1000	
Ballot styles allowed per election	HPM (ballot sequence code)	5500	1639 if using paper ballot coded by style
Contests allowed per ballot style	HPM	200	Or number of ballot positions
Precincts allowed per ballot style	HPM	1500	
Candidates (ballot choices) allowed per contest	HPM	175	
Count for any precinct element	ERM Report (ERM results import)	500000	65550 from any tabulator media
Number of parties allowed	HPM	18	
"Vote for" per contest	HPM	90	

Component Limitations:

PAPER BALLOT LIMITATIONS

1. The paper ballot code channel, which is the series of black boxes that appear between the timing track and ballot contents, limits the number of available ballot variations depending on how a jurisdiction uses this code to differentiate ballots. The code can be used to differentiate ballots by Sequence (limited to 1-1639 variations), Type (1-30 variations) or Split (1-40 variations).

2. If Sequence is used as a ballot style ID, it must be unique election-wide and the Split code will always be 1.

3. If Sequence is used as a precinct ID, it limits the number of styles in a precinct to 1200 (30 Types x 40 Splits).

DS200

1. A DS200 coded for Election Day counting will not support more than 18 precincts.

2. The DS200 does not support more than 40 ballot styles in a single absentee precinct in a ballot by-style election. If an election definition contains more than 40 ballot styles, the user

has to define more than one absentee precinct and then separate the ballots into groups for processing.

3. All optical scan ballots used in a given election must be the same size and have the same position capacity.

4. An early vote station will only support a maximum limit of 9999 precincts. A large number of precincts may result in small ballot processing delays.

6. An early vote station will not be able to print a precinct-by-precinct report by default.

MODEL 650
1. The Model 650 supports a maximum 37503 candidates or counters for any election.

2. The M650 does not support more than 100 ballot styles for a single absentee precinct in a ballot by-style election. If an election definition contains more than 100 ballot styles, the user has to define more than one absentee precinct and then separate the ballots into groups for processing

3. All optical scan ballots used in a given election must be the same size and have the same position capacity.

4. The M650 does not support the Arrow style response area.

5. Ballots must be fed in one particular orientation.

6. The Model 650 can interpret a maximum of 1499 office group codes in an election definition. (An "office group" is defined as the collection of one or more contests (including rotation) that always appear together on any ballot style.). This limitation restricts the number of precincts allowed in an election if "precinct only" offices are defined (District Type PRC) because each "precinct only" office always appears in a different office group.

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

2. The AutoMARK recognizes ballot content by the code channel. If the Sequence code is used for Ballot Style ID and the election definition has more than one precinct that uses a specific ballot style, the AutoMARK will not determine which precinct the ballot is associated with. The user should not define ballot style names in the election definition that imply precinct.

ELECTION DATA MANAGER
1. In both open and closed primary elections, operational procedures to define the election in EDM must be strictly followed.

2. The user must input the Party Preference (or Pick Contest) title as „Party Preference‟ in the Office Title box in the Add Office Information window.

3. The user must add a "crossover party" using the Parties option under the **County** menu when the election is an open primary with a party preference race.

4. There is a limitation of 99 candidates for rotation positions. This limit does not apply to positions that float and do not change candidate order.

5. The maximum number of languages supported is 13.

6. The ability to delete parties under the **County** and **Election** menu is not supported.

7. In a primary election, the system does not support displaying the contest(s) from another party's ballot if a third party in the election has candidates in that contest.

ES&S BALLOT IMAGE MANAGER
1. ESS Image Manager requires the installation of Adobe Type Manager for assurance that screen displays of the ballot match the printed ballot.

2. ESSIM does not give a column number or position to straight party candidates in the .ifc. The user must assign these manually in HPM.

BALLOT ON DEMAND
1. Ballot on Demand requires an Oki printer.

2. Batch Ballot printing is not reflected in any BOD reports.

3. Batch Ballot serial numbers are not supported with multi-page ballots.

HARDWARE PROGRAMMING MANAGER (WINDOWS)
1. Hardware Programming Manager supports no more than 18 parties for a single election. This limit is reduced to 12 parties, counting "nonpartisan" as a party, for an Open Primary election that uses two page ballots with the second page containing only non-partisan contests. Party/partisan contents CANNOT flow between pages in an Open Primary.

2. When coding an election for an Open primary, the user cannot include (in total voting) the crossover party listed in the **Description** box in the Election Specifications window. The party type displays in the numbered description box, but the user should clear the **Include** check box next to the crossover party type.

3. When coding an election for an open primary, the party preference contests must be identified as nonpartisan.

4. There is a maximum of 31 Statistical Party Counters.

5. Change/Add Polling Place
   - A polling place may be identified to contain all precinct in the election
   - There is a limit of 80 Precincts that can be assigned to a Polling Place with the following exceptions:
   - The M100 and DS200 have a limit of 18 individually selected precincts that can be assigned to a polling place.
6. Ballot Styles

   - In an Open Primary, the number of contest associated with any party (or „nonpartisan" designation) within a ballot style cannot exceed 70. For an Open Primary election, this limitation replaces the 200 contest limit.

7. Districts
- A district is identified by a code that contains 7 positions but is constructed of a 3 position District Type code and a 4 position District code within the type. There are a limit of 19 District Types and 39 Districts for any given type except for the „PRC" district type. The "PRC" district type is used in an election where virtually all precincts have one or two unique precinct specific contests. When the "PRC" district type is active, the District code is designated by the 4 position precinct ID code. The number of precincts that can use this code is a function of the election content and limited by the M650. See "Section 2.2.1."
- A precinct can only have 39 total districts associated with it.

8. **Candidates**
- The maximum number of candidate rotations per contest is 140. This includes candidate position sets where candidate order is not changed, but use alternate position numbers.

ELECTION REPORTING MANAGER

1. The Election Reporting Manager requires a minimum monitor screen resolution of 800 x 600.

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

3. Serve650 continues to run after ERM is stopped via the Windows Task Manager. If the ERM task is ended, Serve650 must also be canceled, or the PC rebooted.

6. Mixed equipment within a single SPP file is not supported. Each equipment type must have its own SPP file.

7. Contest/Precinct selection pop up display limited to 2,900 contests/precincts.

8. Dynamic Precinct Reports are not supported when updating results from iVotronic Audit Data.

9. Foreign characters are not supported in ERM. This has to do with the creation of the XML results file out of ERM.

10. Generating a District Canvass Report without first properly creating a .DST file can result in inaccurate totals reports and inconsistent report formatting.

11. When retrieving election data from DS200 tabulators; ERM supports a maximum of 1900 precincts for an "All Precincts Included" Poll.

AUTOMARK INFORMATION MANAGEMENT SYSTEM (AIMS)

If the number of precincts imported from Election Data Manager exceeds 840, an election administrator must manually configure the code channel for precinct number 840 within AIMS. Code channel information for all other precincts imports properly.

Functionality

Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
Voter Verified Paper Audit Trails		
VVPAT	N	

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

Feature/Characteristic	Yes/No	Comment
Split Precincts: Multiple ballot styles	Y	
Split Precincts: P & M system support splits with correct contests and ballot identification of each split	Y	
Split Precincts: DRE matches voter to all applicable races.	N	
Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	Y	System lists the # of voters.
Vote N of M:		
Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	Y	
Vote for N of M: Invalidates all candidates in an overvote (paper)	Y	
Recall Issues, with options:		
Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	N	
Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	N	
Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2nd contest.)	N	
Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2nd contest.)	N/A	Overturned - US District Court 7/29/03: CA Election Code sect. 11383
Cumulative Voting		
Cumulative Voting: Voters are permitted to cast, as many votes as there are seats to be filled for one or more candidates. Voters are not limited to giving only one vote to a candidate. Instead, they can put multiple votes on one or more candidate.	N	
Ranked Order Voting		
Ranked Order Voting: Voters can write in a ranked vote.	N	
Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	N	
Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	N	
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	N	

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

Feature/Characteristic	Yes/No	Comment
Central counting device	Y	M650