Appendix A, B, and G of the ES&S Unity 3.2.0.0 Revision 1 Voting System Certification Test Report for DS200 Modifications to the EAC Certified ESSUNITY3200

Prepared for
Election System and Software
11208 John Galt Blvd.
Omaha, NE 68137
EAC Application ESS1002
Version 4.0
EAC Certification # ESSUNITY3200REV1

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Trace to Standards	
NIST Handbook 150-22	
Section 5.5, 5.10.1 through 5.10.3, 5.10.5, 5.10.6	
VVSG	
Vol. #	Section(s) #
1	1.4.1
1	2, 3, 4, 5, 6, & 7
2	1.8.3
2	2, 3, 4, 5, & 6
2	7.4 & 7.5.
2	Appendix B

Test Results in this report apply to the voting system configuration tested. Testing of voting systems that have been modified may or may not produce the same test results. This report shall not be reproduced, except in full.
iBeta Quality Assurance is accredited for Voting System Testing:

EAC Lab Code: 0702 – Effective thru 7/16/11

NVLAP LAB CODE 200749-0

2675 South Abilene Street, #300, Aurora, Colorado, 80014

Version History				
Ver #	**Description of Change**	**Author**	**Approved by**	**Date**
v.1.0	Initial release	Carolyn Coggins Jenn Garcia Steve Brown	Steve Pearson and John Lento	6/30/10
v.2.0	Update version to be consistent with the main report; no changes to Appendix A, B or G	Carolyn Coggins	Carolyn Coggins	7/20/10
v.3.0	Updated • Report version and added EAC Certification # • Appendix A with comments per EAC review	Jenn Garcia	Carolyn Coggins	10/4/10
v.4.0	Update version to be consistent with the main report; no changes to Appendix A, B or G	Carolyn Coggins	Carolyn Coggins	10/12/10

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APPENDIX A. B, and G: TEST OPERATION, FINDINGS & DATA ANALYSIS

Appendix A: Certification Test Requirements

Appendix A identifies the test results to the Certification Test Requirement in the original certified ESSUNITY3200 to the VSS 2002 of and the VVSG *2005* for the changes to the DS200 submitted in the Unity 3.2.0.0 Revision 1voting system. Requirements marked:

- Accept: met the requirement
- Reject: did not meet the requirement
- NA: the requirement is not applicable to the voting system type submitted for Certification Testing

Requirements marked Reject or NA include an explanatory note. (Example: If a voting system is only a Central Count Scanner, a DRE requirement is marked "NA" and a comment indicates "Not a DRE.") Optional requirements which apply to the voting system type but are not supported by the ES&S Unity 3.2.0.0 or Unity 3.2.0.0 Revision 1are not marked "NA". Instead they are marked "Accept", with an explanatory comment. The reason for this is to provide a positive identification that iBeta reviewed the voting system for all applicable requirements, including this optional functionality and confirmed non-support. (Example: If a voting system does not have a VVPAT. The requirements are marked "Accept" and a comment indicates "DRE does not have a VVPAT".) The test case trace corresponds to the Test Methods identified in the Test Plan & Appendix D:

Unity 3.2.0.0 Revision 1 Testing

F -DS200= The DS200 Cosmetic and Functional Enhancements and Issues

NA=The requirement is not applicable to the voting system type or is unmodified from Unity 3.2.0.0

E-DS200= Environmental testing enhancements to DS200

ESSUNITY3200 Unmodified= No changes, all testing is completed, the testing for results listed here is documented in the Unity 3.2.0.0 Test Report

E= Reuse Environmental & Reliability

F= Reuse SysTest Functional, Characteristics, Maintenance, Accessibility, Availability, Data Accuracy

R= Regression System Level

S= Security Test Case

T= Telephony & Cryptographic Test Case

V1-10= Volume 1 through 10 Test Cases

NA= The requirement is not applicable to the voting system type

Issues identified during testing are cross-referenced to the Appendix E- Discrepancy Report.

Maufacturer Voting System & Version	Scope	Prior EAC Certification#
ES&S Unity 3.2.0.0 Revision 1 Voting System	Changes to the DS200 (VSS 2005)	ESSUnity3200 (VSS 2002)

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
2.2	**Overall System Capabilities**					
2.2.1	**Security** System security is achieved through a combination of technical capabilities and sound administrative practices. Te ensure security all systems shall:					
a.	Provide security access controls that limits limit or detect access to critical system components to guard against loss of system integrity, availability, confidentiality, and accountability.	Accept			S	
b. *VVSG 2005* 2.1.1	Provide system functions that are executable only in the intended manner and order, and only under the intended conditions.	Accept			S, R	See Section 6 field issue 2
c.	Use the system's control logic to prevent a system function from executing, if any preconditions to the function have not been met.	Accept			S, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
d.	Provide safeguards to protect against tampering during system repair, or interventions in system operations, in response to system failure.	Accept			S	
e.	Provide security provisions that are compatible with the procedures and administrative tasks involved in equipment preparation, testing, and operation.	Accept			S	
f.	If access to a system function is to be restricted or controlled the system shall incorporate the means of implementing this capability.	Accept			S	
g.	Provide documentation of mandatory administrative procedures for effective system security.	Accept			S	
2.2.2	**Accuracy :** To ensure vote accuracy, all systems shall:					
2.2.2.1	Common Standards to Ensure Vote Accuracy To ensure vote accuracy, all systems shall:					
a.	Records the election contests, candidates, and issues exactly as defined by election officials.	Accept			F, R	
b.	Records the appropriate options for casting and recording votes.	Accept			F, R	
c.	Records each vote precisely as indicated by the voter and have the ability to produce an accurate report of all votes cast.	Accept			F, R	RFI 2007-06
d.	Control logic and data processing methods incorporation parity and check sums (or equivalent error detection and correction methods) to demonstrate the system has been designed for accuracy.	Accept			S	
e.	The software monitors the overall quality of data read-write and transfer quality status, checks the number and types of errors that occur in any of the relevant operations on data and how they were corrected.	Accept			S	
2.2.2.2	DRE System Standards: In additional DRE systems shall:					
	As an additional means of ensuring accuracy in DRE systems, voting devices record and retain redundant copies of the original ballot image. A ballot image electronic record of all votes cast by the voter, including undervotes.	Accept			NA	RFI 2007-06 No DRE
2.2.3 *VVSG 2005* **2.1.3**	**Error Recovery:** To recover from a non-catastrophic failure of a device, or from any error or malfunction that is within the operator's ability to correct, the system shall provide the following capabilities:					See Section 6 field issue 2
a.	Restoration of the device to the operating condition existing immediately prior to an error or failure, without loss or corruption of voting data previously stored in the device	Accept			S, V1-10, R, F	
b.	Resumption of normal operation following the correction of a failure in a memory component, or in a data processing component, including the central processing unit	Accept			S, R, F	
c.	Recovery from any other external condition that causes equipment to become inoperable, provided that catastrophic electrical or mechanical damage due to external phenomena has not occurred.	Accept			S, R, F	
2.2.4	**Integrity:** Integrity measures ensure the physical stability and function of the vote recording and counting processes. To ensure system integrity, all systems shall:					
2.2.4.1	Common Standards: To ensure system integrity, all systems shall:					
a.	Protect against a single point of failure that would prevent further voting at the polling place.	Accept			F	
b.	Protects against the interruption of electronic power.	Accept			F, V-5	
c.	Protects against electromagnetic radiation.	Accept			E	
d.	Protects against the ambient temperature and humidity fluctuations.	Accept			E	
e.	Protects against failure of any data input or storage device.	Accept			S, V4	
f.	Protects against any attempt at improper data entry or retrieval	Accept			S	
g *VVSG 2005* **2.1.4**.	Records and reports of any normal or abnormal events.	Accept			S	See Section 6 field issue 2

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
h.	Maintains a permanent record of original audit data that cannot be bypassed or turned off.	Accept			S	
i. *VVSG 2005* 2.1.4.	Detect and record every event, including the occurrence of an error condition that the system cannot overcome, and time-dependent or programmed events that occur without the intervention of the voter or a polling place operator	Accept			R	See Section 6 field issue 2
j.	Include built-in measurement, self-test, and diagnostic software and hardware for detecting and reporting the system's status and degree of operability	Accept	F -DS200		S	
2.2.4.2	DRE Systems Standards: In addition to the common requirements, DRE systems shall:					
a.	Maintain a record of each ballot cast using a process and storage location that differs from the main vote detection, interpretation, processing, and reporting path	Accept			NA	No DRE
b.	Provide a capability to retrieve ballot images in a form readable by humans	Accept			NA	No DRE
2.2.5	**System Audit:** See the requirement for context of these requirements.					RFI 2008-12
2.2.5.2	Operational Requirements					
VVSG 2005 2.1.5.1	Audit records shall be prepared for all phases of election operations performed using devices controlled by the jurisdiction or its contractors. These records rely upon automated audit data acquisition and machine-generated reports, with manual input of some information. These records shall address the ballot preparation and election definition phase, system readiness tests, and voting and ballot-counting operations. The software shall activate the logging and reporting of audit data as described below.	Accept			S, R, F	See Section 6 field issue 2
2.2.5.2.1	Time, Sequence, and Preservation of Audit Records The timing and sequence of audit record entries is as important as the data contained in the record. All voting systems shall meet the requirements for time, sequence and preservation of audit records outlined below.					
a.	Except where noted, systems shall provide the capability to create and maintain a real-time audit record. This capability records and provides the operator or precinct official with continuous updates on machine status. This information allows effective operator identification of an error condition requiring intervention, and contributes to the reconstruction of election-related events necessary for recounts or litigation.	Accept			S, R, F	
b.	All systems shall include a real-time clock as part of the system's hardware. The system shall maintain an absolute record of the time and date or a record relative to some event whose time and data are known and recorded.	Accept			S, R, F	
c.	All audit record entries shall include the time-and-date stamp.	Accept			S, R, F	
d.	The audit record shall be active whenever the system is in an operating mode. This record shall be available at all times, though it need not be continually visible.	Accept			S, R, F	
e.	The generation of audit record entries shall not be terminated or altered by program control, or by the intervention of any person. The physical security and integrity of the record shall be maintained at all times.	Accept			S, R, F	
f.	Once the system has been activated for any function, the system shall preserve the contents of the audit record during any interruption of power to the system until processing and data reporting have been completed.	Accept			S, R, F	
g. 1) 2) 3)	The system shall be capable of printing a copy of the audit record. A separate printer is not required for the audit record, and the record may be produced on the standard system printer if all the following conditions are met: • The generation of audit trail records does not interfere with the production of output reports • The entries can be identified so as to facilitate their recognition, segregation, and retention • The audit record entries are kept physically secure	Accept			S, R, F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
2.2.5.2.2	Error messages All voting systems shall meet the requirements for error messages below.					
a. **VVSG 2.1.5.1.b.i**	The voting system shall generate, store, and report to the user all error messages as they occur.	Accept	F -DS200	Field Report 2: Accepted per VVSG Appx. B5 no documented report of loss or corruption of vote data.	S, R, F	See: Voting System Technical Advisory Intermittent Freeze/Shutdowns with EAC Certified ES&S Unity 3.2.0.0 System See Section 6 field issue 2
b. **VVSG 2.1.5.1.b.ii**	All error messages requiring intervention by an operator or precinct official shall be displayed or printed clearly in easily understood language text, or by means of other suitable visual indicators.	Accept	F -DS200	Field Report 2: Accepted per VVSG Appx. B5 no documented report of loss or corruption of vote data.	S, R, F	See: Voting System Technical Advisory Intermittent Freeze/Shutdowns with EAC Certified ES&S Unity 3.2.0.0 System See Section 6 field issue 2
c. **VVSG 2.1.5.1.b.iii**	When the voting system uses numerical error codes for trained technician maintenance or repair, the text corresponding to the code shall be self-contained or affixed inside the voting machine. This is intended to reduce inappropriate reactions to error conditions, and to allow for ready and effective problem correction.	Accept	F -DS200		S, R, F	
d. **VVSG 2.1.5.1.b.iv**	All error messages for which correction impacts vote recording or vote processing shall be written in a manner that is understandable to an election official who possesses training on system use and operation, but does not possess technical training on system servicing and repair.	Accept	F -DS200	Discrepancy #2 Closed	S, R, F	
e. **VVSG 2.1.5.1.b.v**	The message cue for all voting systems shall clearly state the action to be performed in the event that voter or operator response is required.	Accept	F -DS200		S, R, F	
f. **VVSG 2.1.5.1.b.vi**	Voting system design shall ensure that erroneous responses will not lead to irreversible error.	Accept	F -DS200		S, R, F	
g. **VVSG 2.1.5.1.b.vii**	Nested error conditions are corrected in a controlled sequence such that voting system status shall be restored to the initial state existing before the first error occurred.	Accept	F -DS200		S, R, F	
2.2.5.2.3	Status Messages: The Standards/Guidelines provide latitude in software design so that vendors can consider various user processing and reporting needs. The jurisdiction may require some status and information messages to be displayed and reported in real-time. Messages that do not require operator intervention may be stored in memory to be recovered after ballot processing has been completed.					
	The voting system shall display and report critical status messages using clear indicators or English language text. The voting system need not display non-critical status messages at the time of occurrence. Voting systems may display non-critical status messages (i.e., those that do not require operator intervention) by means of numerical codes for subsequent interpretation and reporting as unambiguous text.	Accept	F -DS200		S, R, F	
	Voting systems shall provide a capability for the status messages to become part of the real-time audit record.	Accept	F -DS200		S, R, F	
	The voting system shall provide a capability for a jurisdiction to designate critical status messages.	Accept	F -DS200		S, R, F	
2.2.5.3	COTS General Purpose Computer System Requirements: See the standards for the context these requirements. Three operating system protections are required on all such systems on which election software is hosted.					RFI 2008-03 RFI 2008-12

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
	Authentication shall be configured on the local terminal (display screen and keyboard) and on all external connection devices ("network cards" and "ports"). This ensures that only authorized and identified users affect the system while election software is running.	Accept			S	
	Operating system audit shall be enabled for all session openings and closings, for all connection openings and closings, for all process executions and terminations, and for the alteration or deletion of any memory or file object. This ensures the accuracy and completeness of election data stored on the system. It also ensures the existence of an audit record of any person or process altering or deleting system data or election data.	Accept			S	
	The system shall be configured to execute only intended and necessary processes during the execution of election software. The system shall also be configured to halt election software processes upon the termination of any critical system process (such as system audit) during the execution of election software.	Accept			S	
2.2.6	**Election Management System**					
VVSG 2005 **2.1.6**	The Election Management System (EMS) is used to prepare ballots and programs for use in casting and counting votes, and to consolidate, report, and display election results. An EMS shall generate and maintain a database, or one or more interactive databases, that enables election officials or their designees to perform the following functions:	Accept			F, R	
a ***VVSG 2005*** **2.1.6**	Define of the political subdivision boundaries and multiple election districts, as indicated in the system documentation.	Accept	F -DS200		F, R	
b. ***VVSG 2005*** **2.1.6**	Identify of contests, candidates, and issues.	Accept	F -DS200		F, R	
c. ***VVSG 2005*** **2.1.6**	Define of ballot formats and appropriate voting options.	Accept	F -DS200		F, R	
d.	Generate ballots and election-specific programs for vote recording and vote counting equipment.	Accept			F, R	
e.	Install ballots and election-specific programs.	Accept			F, R	
f.	Test that ballots and programs have been properly prepared and installed.	Accept			F, R	
g.	Accumulate vote totals at multiple reporting levels as indicated in the system documentation.	Accept			F, R	
h.	Generate of post-voting reports per Section 2.4.	Accept			F, R	
VVSG 2005	Generate of post-voting reports per Section 2.4.	Accept			F, R	
i.	Process and produce audit reports of the data indicated in Section 4.5.	Accept			F, R	
2.2.7	**Accessibility**					
2.2.7.1	Common Standards: See the standard for diagrams. The voting system meets the following conditions:					
a.	Where clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48inches. The minimum low forward reach is 15 inches.	Accept			F	
b.	Where forward reach is over an obstruction with knee space below, the maximum level forward reach is 25 inches. When the obstruction is less than 20 inches deep, the maximum high forward reach is 48 inches. When the obstruction projects 20 to 25 inches, the maximum high forward reach is 44 inches.	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
c.	The position of any operable control is determined with respect to a vertical plane that is 48 inches in length, centered on the operable control, and at the maximum protrusion of the product within the 48-inch length.	Accept			F	
d.	Where any operable control is 10 inches or less behind the reference plane, have a height that is between 15 inches and 54 inches above the floor.	Accept			F	
e.	Where any operable control is more than 10 inches and not more than 24 inches behind the reference plane, have a height between 15 inches and 46 inches above the floor.	Accept			F	
f.	Have operable controls that are not more than 24 inches behind the reference plane.	Accept			F	
2.2.7.2	DRE Standards for Accessibility: DRE voting systems shall provide, as part of their configuration, the capability to provide access to voters with a broad range of disabilities. This capability shall:					
a.	Not require the voter to bring their own assistive technology to a polling place.	Accept			F	VAT - Ballot marking only
b	Provide Audio information and stimulus that:					
b.1.	Communicates to the voter the complete content of the ballot.	Accept			F	VAT - Ballot marking only
b.2.	Provides instruction to the voter in operation of the voting device.	Accept			F	VAT - Ballot marking only
b.3.	Provides instruction so that the voter has the same vote capabilities and options as those provided by the system to individuals who are not using audio technology	Accept			F	VAT - Ballot marking only
b.4.	For a system that supports write-in voting, enables the voter to review the voter's write-in input, edit that input, and confirm that the edits meet the voter's intent.	Accept			F	VAT - Ballot marking only
b.5.	Enables the voter to request repetition of any system provided information.	Accept			F	VAT - Ballot marking only
b.6.	Supports the use of headphones provided by the system that may be discarded after each use	Accept			F	VAT - Ballot marking only
b.7.	Provides the audio signal through an industry standard connector for private listening using a 1/8 inch stereo headphone jack to allow individual voters to supply personal headsets	Accept			F	VAT - Ballot marking only
b.8.	Provides a volume control with an adjustable amplification up to a maximum of 105 dB that automatically resets to the default for each voter	Accept			F	VAT - Ballot marking only
c.	Provide, in conformance with FCC Part 68, a wireless coupling for assistive devices used by people who are hard of hearing when a system utilizes a telephone style handset to provide audio information	Accept			F	VAT - Ballot marking only
d.	Meet the requirements of ANSI C63.19-2001 Category 4 to avoid electromagnetic interference with assistive hearing devices	Accept			F	VAT - Ballot marking only
e.	For Electronic Image Displays, permit the voter to:					
e.1.	Adjust contrast settings	Accept			F	VAT - Ballot marking only
e.2.	Adjust color settings, when color is used	Accept			F	VAT - Ballot marking only
e.3.	Adjust the size of the text so that the height of capital letters varies over a range of 3 to 6.3 millimeters	Accept			F	VAT - Ballot marking only
f.	For a devise with touch screen or contact-sensitive controls, provide an input method using mechanically operated controls or keys that shall:					
f.1.	Be tactilely discernible without activating the controls or keys.	Accept			F	VAT - Ballot marking only
f.2.	Be operable with one hand and not require tight grasping, pinching, or twisting of the wrist.	Accept			F	VAT - Ballot marking only
f.3.	Require a force less than 5 lbs (22.2 N) to operate.	Accept			F	VAT - Ballot marking only
f.4.	Provide no key repeat function.	Accept			F	VAT - Ballot marking only
g.	For a system that requires a response by a voter in a specific period of time, alert the voter before this time period has expired and allow the voter additional time to indicate that more time is needed	Accept			F	VAT - Ballot marking only

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
h.	For a system that provides sound cues as a method to alert the voter about a certain condition, such as the occurrence of an error, or a confirmation, the tone shall be accompanied by a visual cue for users who cannot hear the audio prompt	Accept			F	VAT - Ballot marking only
i.	Provide a secondary means of voter identification or authentication when the primary means of doing so uses biometric measures that require a voter to possess particular biological characteristics	Accept			F	VAT has no biometric measures
2.2.8	**Vote Tabulating Program**					
2.2.8.1	Functions The vote tabulating program software resident in each voting machine, vote count server, or other devices shall include all software modules required to:					
a.	Monitor of system status and generating machine-level audit reports	Accept			F, R	
b.	Accommodate device control functions performed by polling place officials and maintenance personnel	Accept			F, R	
c.	Register and accumulating votes	Accept			F, R	
d.	Accommodate variations in ballot counting logic	Accept			F, R	
2.2.8.2	Voting Variation The Technical Data Package accompanying the system shall specifically identify which of the following items can and cannot be supported by the voting system, as well as how the voting system can implement the items support.					
a.	Documented support or non-support of closed primaries.	Accept			F	
b. ***VVSG 2005* 2.1.7.2**	Documented support or non-support of open primaries.	Accept	F -DS200		F	
c. ***VVSG 2005* 2.1.7.2**	Documented support or non-support of partisan offices.	Accept	F -DS200		F	
d.	Documented support or non-support of non-partisan offices.	Accept			F	
e. ***VVSG 2005* 2.1.7.2**	Documented support or non-support of write-in voting.	Accept	F -DS200		F	
f.	Documented support or non-support of Primary presidential delegation nomination.	Accept			F	
g.	Documented support or non-support of ballot rotation.	Accept			F	
h.	Documented support or non-support of straight party voting.	Accept			F	
i.	Documented support or non-support of cross-party endorsement	Accept			F	
j.	Documented support or non-support of split precincts.	Accept			F	
k. . ***VVSG 2005* 2.1.7.2**	Documented support or non-support of vote for N of M.	Accept	F -DS200		F	
l.	Documented support or non-support of recall issues, with options.	Accept			F	
m.	Documented support or non-support of cumulative voting.	Accept			F	
n.	Documented support or non-support of ranked over voting.	Accept			F	
o.	Documented support or non-support of provisional or challenged ballots.	Accept			F	
2.2.9	**Ballot Counter :** For all voting systems, each device that tabulates ballots shall provide a counter that:.					
a.	Can be set to zero before any ballots are submitted for tally	Accept			F, R	
b.	Records the number of ballots cast during a particular test cycle or election	Accept			F, R	
c.	Increases the count only by the input of a ballot	Accept			F, R	
d.	Prevents or disables the resetting of the counter by any person other than authorized persons at authorized points	Accept			F	
e.	Is visible to designated election officials	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
2.2.10	**Telecommunications** For all voting systems that use telecommunications for the transmission of data during pre-voting, voting or post-voting activities, capabilities shall be provided that ensure data are transmitted with no alteration or unauthorized disclosure during transmission. Such transmissions shall not violate the privacy, secrecy, and integrity demands of the Standards. Section 5 of the Standards describes telecommunications standards that apply to, at a minimum, the following types of data transmissions:					
	Voter Authentication: Coded information that confirms the identity of a voter for security purposes for a system that transmit votes individually over a public network	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	Ballot Definition: Information that describes to voting equipment the content and appearance of the ballots to be used in an election	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	Vote Transmission to Central Site: For voting systems that transmit votes individually over a public network, the transmission of a single vote to the county (or contractor) for consolidation with other county vote data	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	Vote Count: Information representing the tabulation of votes at any one of several levels: polling place, precinct, or central count	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	List of Voters: A listing of the individual voters who have cast ballots in a specific election	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
2.2.11	**Data Retention:** See standard/guideline for context.					
	All voting systems shall provide for maintaining the integrity of voting and audit data during an election and for a period of at least 22 months thereafter.	Accept			TDP	Attestation from ESS
2.3	**Pre-voting Functions**					
2.3.1	**Ballot Preparation**					
2.3.1.1	General Capabilities					
VVSG2005 2.2.1.1	All systems shall provide the general capability for ballot preparation, ballot formatting and ballot production. All systems shall be capable of:	Accept	F -DS200		F, R	
2.3.1.1.1	Common Standards: All systems shall be capable of:					
a.	Enable the automatic formatting of ballots in accordance with the requirements for offices, candidates, and measures qualified to be placed on the ballot for each political subdivision and election district.	Accept			F, R	
b. 1) 2) 3)	Collecting and maintaining the following data: Offices with labels/instructions Candidate names with labels Issues or measures with their text	Accept			F, R	
c.	Supporting the maximum number of potentially active voting positions as indicated in the system documentation.	Accept			F, V8	
d.	For a primary election, generating ballots that segregate the choices in partisan races by party affiliation	Accept			F, R	
e.	Generating ballots that contain identifying codes or marks uniquely associated with each format.	Accept			F, R	
f.	Ensuring voter response fields, selection buttons, or switches properly align with the specific candidate names and/or issues printed on the ballot display, ballot card or sheet, or separate ballot pages.	Accept			F, R	
2.3.1.1.2	Paper-Based System Standards: Paper-based voting systems shall also meet the following requirements applicable to the technology used.					
a. ***VVSG 2005* 2.2.1.1.g**	Enable voters to make selections by punching a hole or by making a mark in areas designated for this purpose upon each ballot card or sheet.	Accept	F -DS200		F, R	
b.	For punchcard systems ensure that the vote response fields can be properly aligned with punching devices used to record votes.	Accept			NA	Not a punchcard system

VSS 2002 *VVSG 2005*	**Certification Test Requirements:**	**Test Results**	**Unity 3.2.0.0 Revision 1**	**Comment**	**ESSUNITY 3200**	**Comment**
c. . ***VVSG 2005*** **2.2.1.1.h**	For marksense systems, the timing marks align properly with the vote response fields.	Accept	F -DS200		F, R	
2.3.1.2	Ballot Formatting All voting systems shall provide a capability for:					
a.	Creation of newly defined elections	Accept			F, R	
b.	Rapid and error-free definition of elections and their associated ballot layouts	Accept			F,R	
c.	Uniform allocation of space and fonts used for each office, candidate, and contest such that the voter perceives no active voting position to be preferred to any other.	Accept			F, R	
d.	Simultaneous display of the maximum number of choices for a single contest as indicated by the vendor in the system documentation	Accept			F	
e.	Retention of previously defined formats for an election	Accept			F, R	
f.	Prevention of unauthorized modification of any ballot formats	Accept			F, R	
g.	Modification by authorized persons of a previously defined ballot format for use in a subsequent election	Accept			F, V3 & 4	
2.3.1.3	Ballot Production Ballot production is the process of converting ballot formats to a media ready for use in the physical ballot production or electronic presentation.					
2.3.1.3.1	Common Standards The voting system shall provide a means of printing or other wise generating a ballot display that can be installed in all system voting devices for which it is intended: All systems shall provide a capability to ensure.					
a.	The electronic display or printed document on which the user views the ballot is capable of rendering an image of the ballot in any of the languages required by The Voting Rights Act of 1965, as amended	Accept			F	RFI 2008-04
b.	The electronic display or printed document where the user views the ballot does not show any advertising or commercial logos of any kind, whether public service, commercial, or political, unless specifically provided for in State law. Electronic displays do not provide connection through hyperlink.	Accept			F	
c.	The ballot conforms to vendor specifications for type of paper stock, weight, size, shape, size and location of punch or mark field used to record votes, folding, bleed through, and ink for printing if paper ballot documents or paper displays are part of the system	Accept			F, R	
2.3.1.3.2	Paper-based System Standards					
	Vendor documentation for marksense systems shall include specifications for ballot materials to ensure that vote selections are read from only a single ballot at a time, without detection of marks from multiple ballots concurrently (e.g., reading of bleed-through from other ballots)	Accept			F	
2.3.2	**Election Programming** Process by which election officials or their designees use election databases and vendor system software to logically define the voter choices associated with the contents of the ballots. All systems shall provide for:					
a.	Logical definition of the ballot, including the definition of the number of allowable choices for each office and contest	Accept			F, R	
b.	Logical definition of political and administrative subdivisions, where the list of candidates or contests varies between polling places	Accept			F, R	
c.	Exclusion of any contest on the ballot in which the voter is prohibited from casting a ballot because of place of residence, or other such administrative or geographical criteria	Accept			F, R	
d.	Ability to select from a range of voting options to conform to the laws of the jurisdiction in which the system will be used	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
e.	Generation of all required master and distributed copies of the voting program, in conformance with the definition of the ballots for each voting device and polling place, and for each tabulating device	Accept			F, R	
2.3.3	**Ballot and Program Installation and Control:** All systems shall include the following at the time of ballot an program installation:	Accept				
	All systems provide a means of installing ballots and programs on each piece of polling place or central count equipment according to the ballot requirements of the election and the jurisdiction.	Accept			F, R	
a.	A detailed work plan or other documentation providing a schedule and steps for the software and ballot installation, including a table outlining the key dates, events and deliverables.	Accept			F	
b.	A capability for automatically verifying that the software has been properly selected and installed in the equipment or in programmable memory devices and for indicating errors.	Accept			F,S	
c.	A capability for automatically validating that software correctly matches the ballot formats that it is intended to process, for detecting errors, and for immediately notifying an election official of detected errors.	Accept			F, S	
2.3.4	**Readiness Testing:** Election personnel conduct voting equipment and voting system readiness tests prior to the start of an election to ensure that the voting system functions properly, to confirm that voting equipment has been properly integrated, and to obtain equipment status reports. All voting systems shall provide the capabilities to					
2.3.4.1	Common Standards: All voting systems shall provide the capabilities to:					
a.	Verify the voting machines or vote recording and data processing equipment, precinct count equipment, and central count equipment are properly prepared for an election, and collect data that verifies equipment readiness	Accept			F, S	
b. *VVSG 2005* **2.2.4.b**	Obtains status and data reports from each set of equipment	Accept	F -DS200		F, R	
c.	Verify the correct installation and interface of all system equipment	Accept			F, R	
d.	Verify that hardware and software function correctly	Accept			F, R	
e.	Generate consolidated data reports at the polling place and higher jurisdictional levels	Accept			F, R	
f.	Segregate test data from actual voting data, either procedurally or by hardware/software features	Accept			F, R	
	Resident test software, external devices, and special purpose test software connected to or installed in voting devices to simulate operator and voter functions used for these tests meeting the following standards:					
a.	These elements are capable of being tested separately, and are proven to be reliable verification tools prior to their use	Accept			F	
b.	These elements are incapable of altering or introducing any residual effect on the intended operation of the voting device during any succeeding test and operational phase.	Accept			F	
2.3.4.2	Paper-Based Systems Paper-based systems shall:					
a.	Supports conversion testing that uses all potential ballot positions as active positions	Accept			F	
b.	Supports conversion testing of ballots with active position density for systems without pre-designated ballot positions	Accept			F	
2.3.5	**Verification at the Polling Place** All systems shall provide a formal record of the following, in any media, upon verification of the authenticity of the command source:					RFI 2008-07
a.	The election's identification data;	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
b.	The identification of all equipment units;	Accept			F, R	
c.	The identification of the polling place;	Accept			F, R	
d.	The identification of all ballot formats;	Accept			F, R	
e.	The contents of each active candidate register by office and of each active measure register at all storage locations (showing that they contain only zeros);	Accept			F, R, S	
f.	A list of all ballot fields that can be used to invoke special voting options	Accept			F	
g.	Other information needed to confirm the readiness of the equipment, and to accommodate administrative reporting requirements	Accept			F, R	
	To prepare voting devices to accept voted ballots, all voting systems shall provide the capability to test each device prior to opening to verify that each is operating correctly. At a minimum the tests shall include.	Accept			F, R	
a.	Confirmation that there are no hardware or software failures.	Accept			F, R	
b.	Confirmation that the device is ready to be activated for accepting votes.	Accept			F, R	
	If a precinct count system includes equipment for the consolidation of polling place data at one or more central counting locations, it shall have means to verify the correct extraction of voting data from transportable memory devices, or to verify the transmission of secure data over secure communication links.	Accept			F, R	Telecommunications is disabled in Unity 3.2.0.0
2.3.6	**Verification at Central Location** Election officials perform verification at the central location to ensure that vote counting and vote consolidation equipment and software function properly before and after an election. Upon verification of the authenticity of the command source, any system used in a central count environment shall provide a printed record of the following:					RFI 2008-07
a.	The election's identification data	Accept			F, R	
b.	The contents of each active candidate register by office and of each active measure register at all storage locations (showing that they contain only zeros);	Accept			F, R S	S - per v.2: 3.3.1
c.	Other information needed to confirm the readiness of the equipment, and to accommodate administrative reporting requirements.	Accept			F, R	
2.4	**Voting Functions** **All voting systems shall support**					
	Opening the polls	Accept			F, R	
	Casting the ballot	Accept			F, R	
	In addition, all DRE systems shall support: Activating the ballot	Accept			F, R	
	Augmenting the election counter	Accept			F, R	VAT
	Augmenting the life-cycle counter	Accept			NA	No DRE
2.4.1.	**Opening the Polls** At a minimum, the systems shall provide the functional capabilities indicated below.					RFI 2008-07
2.4.1.1	Opening the polling Place (Precinct Count Systems) To allow voting devices to be activated for voting, the system shall provide:					
a	An internal test or diagnostic capability to verify that all of the polling place tests specified in 2.3.5 have been successfully completed.	Accept			F, R,S	S - per v.2: 3.3.1
VVSG 2005 **2.3.1.1**	Paper-Based System Requirements To facilitate opening the polls, all paper-based systems shall include:					
a.	An internal test or diagnostic capability to verify that all of the polling place tests specified in 2.2.5 have been successfully completed.	Accept	F -DS200,		F, R,S	S - per v.2: 3.3.1
b.	Automatic disabling any device that has not been tested until it has been tested.	Accept			F, R,S	S - per v.2: 3.3.1
2.4.1.2	Paper-Based System Standards					
2.4.1.2.1	All Paper-Based systems To facilitate opening the polls, all paper-based systems shall include:					

VSS 2002 ***VVSG 2005***	**Certification Test Requirements:**	**Test Results**	**Unity 3.2.0.0 Revision 1**	**Comment**	**ESSUNITY 3200**	**Comment**
VVSG 2005 **2.3.1.2**	Precinct Count Systems To allow voting devices to be activated for voting, all precinct count systems shall provide:					
a.	A means of verifying ballot punching or marking devices are prepared and ready to used;	Accept	F -DS200		F, R	No ballot punching
b.	A voting booth or similar facility, in which the voter may punch or mark the ballot in privacy	Accept			F	No ballot punching
c.	Secure receptacles for holding voted ballots. Ballot boxes.	Accept			F, R, S	DS200
2.4.1.2.2	Precinct Count Paper-Based Systems In addition to the above requirements, all paper-based precinct count equipment shall include a means of:					
a. ***VVSG 2005*** **2.3.1.2.d**	Activating the ballot counting device.	Accept	F -DS200		F, R	
b. ***VVSG 2005*** **2.3.1.2.e**	Verifying that the device has been correctly activated and is functioning properly	Accept	F -DS200		F, R	
c. ***VVSG 2005*** **2.3.1.2.f**.	Identifying device failure and corrective action needed.	Accept	F -DS200		F, R	
2.4.1.3	DRE System Standards To facilitate opening the polls, all DRE systems shall include:					
a.	A security seal, a password, or a data code recognition capability to prevent the inadvertent or unauthorized actuation of the poll-opening function	Accept			F, R, S	VAT doesn't open polls; it just switches to election marking mode
b.	A means of enforcing the execution of steps in the proper sequence if more than one step is required	Accept			F	
c.	A means of verifying the system has been activated correctly	Accept			F, R	
d.	A means of identifying system failure and any corrective action needed	Accept			F	
2.4.2	**Activating the Ballot (DRE Systems)** To activate the ballot, all DRE systems shall:					
a.	Enable election officials to control the content of the ballot presented to the voter, whether presented in printed form or electronic display, such that each voter is permitted to record votes only in contests in which that voter is authorized to vote	Accept			F, R	VAT ballot marking functionality
b.	Allow each eligible voter to cast a ballot	Accept			F, R	
c.	Prevent a voter from voting on a ballot to which he or she is not entitled	Accept			F, R	
d.	Prevent a voter from casting more than one ballot in the same election	Accept			F, R	Blank paper ballot required
e.	Activate the casting of a ballot in a general election	Accept			F	
f.	Enable the selection of the ballot that is appropriate to the party affiliation declared by the voter in a primary election	Accept			F, R	Appropriate blank paper ballot required
g.	Activate all parts of the ballot upon which the voter is entitled to vote	Accept			F,R	Some controls in addition to the paper ballot
h.	Disable of all parts of the ballot upon which the voter is not entitled to vote	Accept			F,R	Some controls in addition to the paper ballot
2.4.3	**Casting a Ballot**					
2.4.3.1	Common Standards To facilitate casting a ballot, all systems shall:					
VVSG 2005 **2.3.3.1**	Common Requirements To facilitate casting a ballot. all systems shall:					
a.	Provide test that is at least 3 millimeters high and provide the capability to adjust or magnify the text to an apparent size of 6.3 millimeters	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
b.	Protect the secrecy of the vote such that the system cannot reveal any information about how a particular voter voted, except as otherwise required by individual State law	Accept	F -DS200		F, R	
c.	Record the selection and non-selection (undervote) of individual vote choices for each contest and ballot measure	Accept	F -DS200		F, R	
d.	Record the voter's selection of candidates whose names do not appear on the ballot, if permitted under State law, and record as many write-in votes as the number of candidates the voter is allowed to select	Accept	F -DS200		F, R	
e.	In the event of a failure of the main power supply external to the voting system, provide the capability for any voter who is voting at the time to complete casting a ballot, allow for the successful shutdown of the voting system without loss or degradation of the voting and audit data, and allow voters to resume voting once the voting system has reverted to back-up power	Accept			F, V5	
f.	Provide the capability for voters to continue cast ballots in the event of a failure of a telecommunications connection within the polling place or between the polling place and any other location	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
2.4.3.2	paper-based System Standards					
2.4.3.2.1	All Paper-Based Systems All paper-based systems shall:					
***VVSG 2005* 2.3.3.2**	Paper-based System Requirement All paper-based systems shall:					
a.	Allow the voter to easily identify the voting field that is associated with each candidate or ballot measure response	Accept	F -DS200		F, R	
b.	Allow the voter to punch or mark the ballot to register a vote	Accept			F, R	
***VVSG 2005* 2.3.3.2.b.**	Allow the voter to mark the ballot to register a vote	Accept	F -DS200		F, R	
c.	Allow either the voter or the appropriate election official is able to place the voted ballot into the ballot counting device (precinct count systems) or a secure receptacle (central count systems)	Accept	F -DS200		F, R	
d.	Protect the secrecy of the vote throughout the process	Accept	F -DS200		F, R	
2.4.3.2.2	Precinct Count Paper-Based Systems In addition to the above requirements, all paper-based precinct count equipment shall include a means of:					
a. ***VVSG 2005* 2.3.3.2.e.**	Provide feedback to the voter identifies specific contests or ballot issues for which an overvote or undervote is detected	Accept	F -DS200		F, R	
b.	Allow the voter, at the voter's choice, to vote a new ballot or submit the ballot 'as is' without correction	Accept			F, R	
c.	Allow an authorized election official to turn off the capabilities defined in the two prior provisions.	Accept			F	
***VVSG 2005* 2.3.3.2.f.**	Notify the voter if he or she has made more than the allowable number of selections for any contest (e.g., overvotes)	Accept	F -DS200			
***VVSG 2005* 2.3.3.2.g**	Notify the voter before the ballot is cast and counted of the effect of making more than the allowable number of selections for a contest	Accept	F -DS200			
***VVSG 2005* 2.3.3.2.h**	Provide the voter opportunity to correct the ballot for either an undervote or overvote before the ballot is cast and counted	Accept	F -DS200			
2.4.3.3	DRE Systems Standards					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
a.	Prohibit the voter from accessing or viewing any information on the display screen that has not been authorized by election officials and preprogrammed into the voting system (i.e., no potential for display of external information or linking to other information sources)	Accept			F,S	VAT ballot marking
b.	Enable the voter to easily identify the selection button or switch, or the active area of the ballot display that is associated with each candidate or ballot measure response	Accept			F, R	VAT ballot marking
c.	Allow the voter to select his or her preferences on the ballot in any legal number and combination	Accept			F, R	VAT ballot marking
d.	Indicate that a selection has been made or canceled	Accept			F, R	VAT ballot marking
e.	Indicate to the voter when no selection, or an insufficient number of selections, has been made in a contest (e.g. undervotes)	Accept			F, R	VAT ballot marking
f.	Prevent the voter from overvoting	Accept			F, R	VAT ballot marking
g.	Notify the voter when the selection of candidates and measures is completed	Accept			F, R	VAT ballot marking
h.	Allowing the voter, before the ballot is cast, to review his or her choices and, if the voter desires, to delete or change his or her choices before the ballot is cast	Accept			F, R	VAT ballot marking
i.	For electronic image displays, prompt the voter to confirm the voter's choices before casting his or her ballot, signifying to the voter that casting the ballot is irrevocable and directing the voter to confirm the voter's intention to cast the ballot	Accept			F, R	VAT ballot marking: printing is irrevocable but not casting of the ballot
j.	Notify the voter after the vote has been stored successfully that the ballot has been cast	Accept				No DRE
k	Notify the voter that the ballot has not been cast successfully if it is not stored successfully, including storage of the ballot image, and provide clear instruction as to the steps the voter should take to cast his or her ballot should this event occur	Accept				No DRE
l.	Provides sufficient computational performance to provide responses back to each voter entry in no more than three seconds	Accept			F	VAT ballot marking; printing exceeds 3 seconds
m.	The votes stored accurately represent the actual votes cast	Accept			F, R	Storage is ballot printing
n.	Preventing modification of the voter's vote after the ballot is cast	Accept			S	Paper ballot handling documentation
o.	Provides a capability to retrieve ballot images in a form readable by humans (in accordance with the requirements of Section 2.2.2.2 and 2.2.4.2)	Accept				No DRE
p.	Incrementing the proper ballot position registers or counters	Accept			F, R	Counts successful prints, not votes cast
q.	Protecting the secrecy of the vote throughout the voting process	Accept			F, R	
r.	Prohibiting access to voted ballots until after the close of polls	Accept				No DRE
s.	Provides the ability for election officials to submit test ballots for use in verifying the end-to-end integrity of the system	Accept			F, R	
t.	Isolating test ballots such that they are accounted for accurately in vote counts and are not reflect in official vote counts for specific candidates or measures	Accept			F, R	VAT has a separate test mode; isolating ballot is procedural
2.5	**Post-Voting Functions** **All systems shall provide capabilities to accumulate and report results for the jurisdiction and to generate audit trails. In additions precinct count systems must provide a means to close the polling place including generating appropriate reports if the system provide the capability to broadcast results, additional standards apply.**					
VVSG 2005 **2.4**	**Post Vote Capabilities** All systems shall provide capabilities to accumulate and report results for the jurisdiction and to generate audit trails. In additions precinct count systems must provide a means to close the polls including generating appropriate reports if the system provide the capability to broadcast results, additional standards apply					

VSS 2002 *VVSG 2005*	**Certification Test Requirements:**	**Test Results**	**Unity 3.2.0.0 Revision 1**	**Comment**	**ESSUNITY 3200**	**Comment**
2.5.1	**Closing the Polling Place (Precinct Count)** These standards for closing the polls are specific to precinct count systems. The system shall provide the means for:					
VVSG 2005 **2.4.1**	**Closing the Polls** These requirements for closing the polls and locking voting systems against future voting are specific to precinct count systems. The voting system shall provide the means for:					
a.	Preventing the further casting of ballots once the polls has closed	Accept			F, R	VAT doesn't close, switched to Off
b.	Provides an internal test that verifies that the prescribed closing procedure has been followed, and that the device status is normal	Accept	F -DS200		F, R	
c.	Incorporating a visible indication of system status	Accept			F, R	
d.	Producing a diagnostic test record that verifies the sequence of events, and indicates that the extraction of voting data has been activated	Accept			F, R	
e.	Precluding the unauthorized reopening of the polls once the poll closing has been completed for that election	Accept			F, R	DS200 reopened with authorization
2.5.2	**Consolidating Vote Data**					
VVSG 2005 **2.4.2**	All systems provide a means to consolidate and report vote data from all polling places, and optionally from other sources such as absentee ballots, provisional ballots, and voted ballots requiring human review (e.g., write-in votes).	Accept	F -DS200		F, R	
2.5.3	**Producing Reports**					
VVSG 2005 **2.4.3**	All systems shall be able to create reports summarizing the data on multiple levels.	Accept	F -DS200		F, R	
2.5.3.1	Common Standards All systems shall provide capabilities to:					
a. ***VVSG 2005*** **2.4.3.a**	Support of geographic reporting, which requires the reporting of all results for each contest at the precinct level and additional jurisdictional levels	Accept	F -DS200		F, R	
b. ***VVSG 2005*** **2.4.3**	Produce a printed report of the number of ballots counted by each tabulator	Accept	F -DS200		F, R	
c. ***VVSG 2005*** **2.4.3.c**	Produce a printed report for each tabulator of the results of each contest that includes the votes cast for each selection, the count of undervotes, and the count of overvotes	Accept	F -DS200		F, R	RFI 2007-06
d. ***VVSG 2005*** **2.4.3.d**	Produce a consolidated printed report of the results for each contest of all votes cast (including the count of ballots from other sources supported by the system as specified by the vendor) that includes the votes cast for each selection, the count of undervotes, and the count of overvotes	Accept	F -DS200		F, R	RFI 2007-06
e. ***VVSG 2005*** **2.4.3.e**	Be capable of producing a consolidated printed report of the combination of overvotes for any contest that is selected by an authorized official (e.g.; the number of overvotes in a given contest combining candidate A and candidate B, combining candidate A and candidate C, etc.)	Accept	F -DS200		F, R	
f.	Produce all system audit information required in Section 4.4 in the form of printed reports, or in electronic memory for printing centrally	Accept			F, R	
VVSG 2005 **2.4.3.f.**	Produce all system audit information required in Section 5.4 in the form of printed reports, or in electronic memory for printing centrally	Accept	F -DS200			
g.	Prevent data from being altered or destroyed by report generation, or by the transmission of results over telecommunications lines	Accept			F, R	Telecommunications is disabled in Unity 3.2.0.0
2.5.3.2	Precinct Count Systems In addition, all precinct count voting systems shall:					
a. . ***VVSG 2005*** **2.4.3**	Prevent the printing of reports and the unauthorized extraction of data prior to the official close of the polling place	Accept	F -DS200		F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
b. ***VVSG 2005 2.4.3***	Provide a means to extract information from a transportable programmable memory device or data storage medium for vote consolidation	Accept	F -DS200		F, R	
c. ***VVSG 2005 2.4.3c***	Consolidate the data contained in each unit into a single report for the polling place when more than one voting machine or precinct tabulator is used	Accept	F -DS200		F, R	
d.	Prevent data in transportable memory from being altered or destroyed by report generation, or by the transmission of results over telecommunications lines	Accept			F, R	Telecommunications is disabled in Unity 3.2.0.0
2.5.4	**Broadcasting Results** Some voting systems offer the capability to make unofficial results available to external organizations such as the news media, political party officials, and others. Although this capability is not required, systems that make unofficial results available shall:					
a.	Provide only aggregated results, and not data from individual ballots	Accept			F	
b.	Provide no access path from unofficial electronic reports or files to the storage devices for official data	Accept			F	
c.	Clearly indicate on each report or file that the results it contains are unofficial	Accept			F	
2.6	**Maintenance, Transportation and Storage** All systems shall be designed and manufactured to facilitate preventive and corrective maintenance, conforming to the hardware standards described in Section 3. All vote casting and tally equipment designated for storage between elections shall: a. Function without degradation in capabilities after transit to and from the place of use, as demonstrated by meeting the performance standards described in Section 3 b. Function without degradation in capabilities after storage between elections, as demonstrated by meeting the performance standards described in Section 3. (See Section 3.2)					
3	***Hardware Standards***					
3.2	**Performance Requirements** Performance requirements address a broad range of parameters (see below)					
3.2.1	**Accuracy Requirements** Voting system accuracy addresses the accuracy of data for each of the individual ballot positions that could be selected by a voter, including the positions that are not selected. For a voting system, accuracy is defined as the ability of the system to capture, record, store, consolidate and report the specific selections and absence of selections, made by the voter for each ballot position without error. Required accuracy is defined in terms of an error rate that for testing purposes represents the maximum number of errors allowed while processing a specified volume of data.					RFI 2007-06
a. 1) 2)	For all paper-based voting systems: Scanning ballot positions on paper ballots to detect selections for individual candidates and contests Conversion of selections detected on paper ballots into digital data	Accept			F, R	
b. 1) 2)	For all DRE voting systems: Recording the voter selections of candidates and contests into voting data storage Recording voter selections of candidates and contests into ballot image storage independently from voting data storage	Accept			NA	No DRE
c. 1)	For precinct-count voting systems (paper-based and DRE): Consolidation of vote selection data from multiple precinct-based voting machines to generate jurisdiction-wide vote counts, including storage and reporting of the consolidated vote data	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
d. 1)	For central-count voting systems (paper-based and DRE): Consolidation of vote selection data from multiple counting devices to generate jurisdiction-wide vote counts, including storage and reporting of the consolidated vote data	Accept			F, R	
	For testing purposes, the acceptable error rate is defined using two parameters: the desired error rate to be achieved, and the maximum error rate that should be accepted by the test process. For each processing function indicated above, the voting system shall achieve a target error rate of no more than one in 10,000,000 ballot positions, with a maximum acceptable error rate in the test process of one in 500,000 ballot positions.	Accept			F, V9	
3.2.2	**Environmental Requirements** All voting systems shall be designed to withstand the environmental conditions contained in the appropriate test procedures of the Standards/Guidelines. These procedures will be applied to all devices for casting, scanning and counting ballots, except those that constitute COTS devices that have not been modified in any manner to support their use as part of a voting system and that have a documented record of performance under conditions defined in the Standards/Guidelines.					
	The Technical Data Package supplied by the vendor shall include a statement of all requirements and restrictions regarding environmental protection, electrical service, recommended auxiliary power, telecommunications service, and any other facility or resource required for the proper installation and operation of the system.	Accept			E	
3.2.2.1	Shelter Requirements					
	Precinct count systems are designed for storage and operation in any enclosed facility ordinarily used as a warehouse or polling place, with prominent instructions as to any special storage requirements	Accept			F	
3.2.2.2	Space Requirements					
	The arrangement of the voting system does not impede performance of their duties by polling place officials, the orderly flow of voters through the polling place, or the ability for the voter to vote in private	Accept			F	
3.2.2.3	Furnishings and Fixtures					
	Any furnishings or fixtures provided as a part of voting systems, and any components provided by the vendor that are not a part of the system but that are used to support its storage, transportation, or operation, comply with the design and safety requirements of Subsection 3.4.8.	Accept			F, E	
3.2.2.4	Electrical Supply Components of voting systems that require an electrical supply shall meet the following standards:					
a.	Precinct count systems operate with the electrical supply ordinarily found in polling places (Nominal 120 Vac/60Hz/1 phase)	Accept			E	
b.	For components of voting systems that require an electrical supply, central count systems operate with the electrical supply ordinarily found in central tabulation facilities or computer room facilities (120vac/60hz/1, 208vac/60hz/3, or 240vac/60hz/2);	Accept			E	
c.	All voting machines shall also be capable of operating for a period of at least 2 hours on backup power, such that no voting data is lost or corrupted nor normal operations interrupted. When backup power is exhausted the voting machine shall retain the contents of all memories intact. The backup power capability is not required to provide lighting of the voting area.	Accept			E	RFI 2008-02 RFI 2008-06

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.2.2.5 ***VVSG 2005 4.1.2.5***	Electrical Power Disturbance Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand, without disruption of normal operation or loss of data:			RFI 2008-02 RFI 2008-06		RFI 2008-02 RFI 2008-06
a.	Surges of 30% dip @10 ms;	Accept	E-DS200		E	
b.	Surges of 60% dip @100 ms & 1 sec	Accept	E-DS200		E	
c.	Surges of >95% interrupt @5Sec;	Accept	E-DS200		E	
d.	Surges of + or - 15% line variations of nominal line voltage	Accept	E-DS200		E	
e.	Electric power increases of 7.5% and reductions of 12.5% of nominal specified power supply for a period of up to four hours at each power level.	Accept	E-DS200		E	
3.2.2.6 ***VVSG 2005 4.1.2.6***	Electrical Fast Transient Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand, without disruption of normal operation or loss of data, electrical fast transients of:			RFI 2008-10		RFI 2008-10
a.	2 kV AC & DC External Power lines	Accept	E-DS200		E	
b.	+ or - 1 kV all external wires > 3 m no control	Accept	E-DS200		E	
c.	+ or - 2 kV all external wires control.	Accept	E-DS200		E	
3.2.2.7 ***VVSG 2005 4.1.2.7***	Lighting Surge Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand, without disruption of normal operation or loss of data, surges of:					
a.	+ or - 2 kV AC line to line	Accept	E-DS200		E	
b.	+ or - 2 kV AC line to earth	Accept	E-DS200		E	
c.	+ or – 0.5 kV DC line to line >10m	Accept	E-DS200		E	
d.	+ or – 0.5 kV DC line to earth >10m	Accept	E-DS200		E	
e.	+ or - 1 kV I/O sig/control >30m	Accept	E-DS200		E	
3.2.2.8 ***VVSG 2005 4.1.2.8***	Electrostatic Disruption					
	The vote scanning and counting equipment for paper-based systems, and all DRE equipment, is able to withstand ±15 kV air discharge and ±8 kV contact discharge without damage or loss of data. The equipment may reset or have momentary interruption so long as normal operation is resumed without human intervention or loss of data. Loss of data means votes that have been completed and confirmed to the voter.	Accept	E-DS200		E	
3.2.2.9 ***VVSG 2005 4.1.2.9***	Electromagnetic Radiation					
	Vote scanning and counting equipment for paper-based systems, and all DRE equipment, complies with the Rules and Regulations of the Federal Communications Commission, Part 15, Class B requirements for both radiated and conducted emissions	Accept	E-DS200		E	
3.2.2.10 ***VVSG 2005 4.1.2.10***	Electromagnetic Susceptibility					
	Vote scanning and counting equipment for paper-based systems, and all DRE equipment, is able to withstand an electromagnetic field of 10 V/m modulated by a 1 kHz 80% AM modulation over the frequency range of 80 MHz to 1000 MHz, without disruption of normal operation or loss of data	Accept	E-DS200		E	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.2.2.11 ***VVSG 2005 4.1.2.11***	Conducted RF Immunity Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand, without disruption of normal operation or loss of data, conducted RF energy of:					
a.	10V AC & DC power	Accept	E-DS200		E	
b.	10V, 20 sig/control >3m.	Accept	E-DS200		E	
3.2.2.12 ***VVSG 2005 4.1.2.12***	Magnetic Fields Immunity					
	Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand, without disruption of normal operation or loss of data, AC magnetic fields of 30 A/m at 60 Hz	Accept	E-DS200		E	
3.2.2.13	Environmental Control – Operating Environment					
	Equipment used for election management activities or vote counting (including both precinct and central count systems) shall be capable of operation in temperatures ranging from 50 to 95 degrees Fahrenheit.	Accept	E-DS200		E	
3.2.2.14	Environmental Control – Transit and Storage Equipment used for vote casting or for counting votes in a precinct count system, shall meet these specific minimum performance standards that simulate exposure to physical shock and vibration associated with handling and transportation by surface and air common carriers, and to temperature conditions associated with delivery and storage in an uncontrolled warehouse environment:					
a.	High and low storage temperatures ranging from -4 to +140 degrees Fahrenheit, equivalent to MIL-STD-810D, Methods 501.2 and 502.2, Procedure I-Storage;	Accept			E	
b.	Bench handling equivalent to the procedure of MIL-STD-810D, Method 516.3, Procedure VI;	Accept			E	
c.	Vibration equivalent to the procedure of MIL-STD-810D, Method 514.3, Category 1- Basic Transportation, Common Carrier	Accept			E	
d.	Uncontrolled humidity equivalent to the procedure of MIL-STD-810D, Method 507.2, Procedure I-Natural Hot-Humid.	Accept			E	
3.2.2.15	Data Network Requirements					
	Voting systems may use a local or remote data network. If such a network is used, then all components of the network shall comply with the telecommunications requirements described in Section 5 and the Security requirements described in Section 6.	Accept			S, T	Network functionality is disabled in the submitted voting system
3.2.3	**Election Management System (EMS) Requirements** The Election Management System (EMS) requirements address electronic hardware and software used to conduct the pre-voting functions defined in Section 2 with regard to ballot preparation, election programming, ballot and program installation, readiness testing, verification at the polling place, and verification at the central location.					
3.2.3.1	Recording Requirements Voting systems shall accurately record all election management data entered by the user, including election officials or their designees.					
a.	Record every entry made by the user;	Accept			F, R	
b.	Add permissible voter selections correctly to the memory components of the device;	Accept			F, R	
c.	Verify the correctness of detection of the user selections and the addition of the selections correctly to memory	Accept			F, R	
d.	Add various forms of data entered directly by the election official or designee, such as text, line art, logos, and images	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
e.	Verify the correctness of detection of data entered directly by the user and the addition of the selections correctly to memory	Accept			F, R	
f.	Preserve the integrity of election management data stored in memory against corruption by stray electromagnetic emissions, and internally generated spurious electrical signals	Accept			E	
g.	Log corrected data errors by the system.	Accept			F, R	
3.2.3.2	Memory Stability Memory devices used to retain election management data shall have demonstrated error-free data retention for a period of 22 months.	Accept			TDP	Attestation from ESS
3.2.4	**Vote Recording Requirements**					
3.2.4.1	Common Standards All voting systems shall provide voting booths or enclosures for poll site use. Such booths or enclosures may be integral to the voting system or supplied as components of the voting system, and shall:					
a.	Be integral to, or make provisions for installation of the voting device;	Accept			F	
b.	Ensure by its structure stability against movement or overturning during entry, occupancy, and exit by the voter	Accept			F	
c.	Provide privacy for the voter, and be designed in such a way as to prevent observation of the ballot by any person other than the voter	Accept			F	
d.	Be capable of meeting the accessibility requirements of Subsection 2.2.7.1	Accept			F	
3.2.4.2	Paper-based Recording Standards The paper-based recording requirements govern: • Ballot cards or sheets, and pages or assemblies of pages containing ballot field identification data • Punching devices • Marking devices • Frames or fixtures to hold the ballot while it is being punched • Compartments or booths where voters record selections • Secure containers for the collection of voted ballots					
3.2.4.2.1	Paper Ballot Standards : Paper ballots used by paper-based voting systems shall meet the following standards:					
a.	Paper ballots used by paper-based voting systems shall meet the following standards: Punches or marks that identify the unique ballot format, in accordance with Section 2.3.1.1.1.c., shall be outside the area in which votes are recorded, so as to minimize the likelihood that these punches or marks will be mistaken for vote responses and the likelihood that recorded votes will obliterate these punches or marks	Accept			F, R	No ballot punches
b.	If printed or punched alignment marks are used to locate the vote response fields on the ballot, these marks shall be outside the area in which votes are recorded, so as to minimize the likelihood that these marks will be mistaken for vote responses and the likelihood that recorded votes will obliterate these marks	Accept			F, R	No ballot punches
c.	The TDP shall specify the required paper stock, size, shape, opacity, color, watermarks, field layout, orientation, size and style of printing, size and location of punch or mark fields used for vote response fields and to identify unique ballot formats, placement of alignment marks, ink for printing, and folding and bleed-through limitations for preparation of ballots that are compatible with the system.	Accept			F	
3.2.4.2.2	Punching Devices: Punching devices used by voting systems shall:					
a.	Be suitable for the type of ballot card specified;	Accept			NA	Not a punch card system
b.	Facilitate the clear and accurate recording of each vote intended by the voter;	Accept			NA	Not a punch card system
c.	Be designed to avoid excessive damage to vote recorder components	Accept			NA	Not a punch card system
d.	Incorporate features to ensure that chad (debris) is removed, without damage to other parts of the ballot card.	Accept			NA	Not a punch card system

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.2.4.2.3	Marking Devices : The Technical Data Package shall specify marking devices (such as pens or pencils) that, if used to make the prescribed form of mark, produce readable marked ballots such that the system meets the performance requirements for accuracy specified previously. These specifications shall identify:					
a.	Specific characteristics of marking devices that affect readability of marked ballots	Accept			F	
b.	Performance capabilities with regard to each characteristic	Accept			F	
c.	For marking devices manufactured by multiple external sources, a listing of sources and model numbers that are compatible with the system.	Accept			F	
3.2.4.2.4	Frames or Fixtures for Punchcard Ballots : A frame or fixture for punchcard ballot shall:					
a.	Hold the ballot card securely in the proper location and orientation for voting:	Accept			NA	Not a punch card system
b.	When contests not directly printed on the ballot card or sheet, incorporate an assembly of ballot label pages that identify offices and issues corresponding to the proper ballot format for the polling place where it is used and are aligned with the voting fields assigned to them	Accept			NA	Not a punch card system
c.	Incorporate a template to preclude perforation of the card except in the specified voting fields; a mask to allow punches only in fields designated by the format of the ballot; and a backing plate for the capture and removal of chad. The requirement may be satisfied by equipment of a different design as long it achieves the same result as the Standard with regard to:	Accept			NA	Not a punch card system
1)	Positioning the card;	Accept			NA	Not a punch card system
2)	Association of ballot label information with corresponding punch fields;	Accept			NA	Not a punch card system
3)	Enable only those voting fields that correspond to the format of the ballot; and	Accept			NA	Not a punch card system
4)	Punching the fields and the positive removal of chad.	Accept			NA	Not a punch card system
3.2.4.2.5	Frames or Fixtures for Printed Ballots: A frame or fixture for printed ballot cards is optional. If such a device is provided, it shall:					
a.	Be of any size and shape consistent with its intended use;	Accept			F	
b.	Position the card properly;	Accept			F	
c.	Hold the ballot card securely in its proper location and orientation for voting	Accept			F	
d.	Comply with the design and construction requirements in Subsection 3.4.	Accept			F	
3.2.4.2.6	Ballot Boxes and Ballot Transfer Boxes Ballot boxes and ballot transfer boxes which serve as secure containers for the storage and transportation of voted ballots, shall:					
a.	Be of any size, shape, and weight commensurate with their intended use	Accept			F	
b.	Incorporate locks or seals, and specifications in the system documentation	Accept			F, S	DS200 v.1:2.2.1
c.	Provide specific points where ballots are inserted, with all other points on the box constructed in a manner that prevents ballot insertion	Accept			F	
d.	For precinct count systems, contain separate compartments for segregating unread ballots, ballots with write-in votes, or irregularities that may require special handling or processing. In lieu of compartments, conversion processing may mark such ballots with an identifying spot or stripe to facilitate manual segregation	Accept			F	
3.2.4.3	DRE Systems Recording Requirements					
3.2.4.3.1	Activity Indicator DRE systems shall include an audible or visible activity indicator providing the status of each voting device. This indicator shall:					
a.	Indicate whether the device has been activated for voting	Accept			F, R	VAT prompts to insert a ballot
b.	Indicate whether the device is in use.	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.2.4.3.2	DRE System Vote Recording To ensure vote recording accuracy and integrity while protecting the anonymity of the voter, all DRE systems shall:					
a.	Contain all mechanical, electromechanical, and electronic components; software; and controls required to detect and record the activation of selections made by the voter in the process of voting and casting a ballot	Accept			F, R	
b.	Incorporate redundant memories to detect and allow correction of errors caused by the failure of any of the individual memories	Accept			NA	No DRE
c. 1) 2)	Provide at least two processes that record the voter's selections that: • To the extent possible, are isolated from each other • Designate one process and associated storage location as the main vote detection, interpretation, processing and reporting path	Accept			NA	No DRE
	Use a different process to store ballot images, for which the method of recording may include any appropriate encoding or data compression procedure consistent with the regeneration of an unequivocal record of the ballot as cast by the voter.	Accept			NA	No DRE
d.	Provide a capability to retrieve ballot images in a form readable by humans.	Accept			NA	No DRE
e.	Ensure that all processing and storage protects the anonymity of the voter.	Accept			F	
3.2.4.3.3	Recording Accuracy: DRE systems meet the following requirements for recording accurately each vote and ballot cast:'					
a.	Detect every selection made by the voter	Accept			F, R	
b.	Correctly add permissible selections to the memory components of the device	Accept			F, R	Temporary memory prior to VAT printing
c.	Verify the correctness of the detection of the voter selections and the addition of the selections to memory	Accept			F, R	
d.	Achieve an error rate not to exceed the requirement indicated in Section 3.2.1	Accept			F	VAT paper ballot marking
e.	Preserve the integrity of voting data and ballot images (for DRE machines) stored in memory for the official vote count and audit trail purposes against corruption by stray electromagnetic emissions, and internally generated spurious electrical signals	Accept			NA	No DRE
f.	Maintain a log of corrected data	Accept			F, R	
3.2.4.3.4	Recording Reliability					
	Recording reliability refers to the ability of the DRE system to record votes accurately at its maximum rated processing volume for a specified period of time. The DRE system shall record votes reliably in accordance with the requirements of Subsection 3.4.3.	Accept			F	VAT paper ballot marking
3.2.5	**Paper-based Conversion Requirements**					
3.2.5.1	Ballot Handling					
	Ballot handling consists of a ballot card's acceptance, movement through the read station and transfer into a collection station or receptacle.	Accept			F, R	
3.2.5.1.1	Capacity (Central Count)					
	The capacity to convert the marks on individual ballots into signals is uniquely important to central count systems. The capacity for a central count system shall be documented by the vendor. This documentation shall include capacity for individual components that impact the overall capacity.	Accept			F, R	
3.2.5.1.2	Exception Handling (Central Count) This requirement refers to the handling of ballots when they are unreadable or some condition is detected requiring that the cards be segregated from normally processed ballots for human review. In response to an unreadable ballot or a write-in vote all central count paper-based systems shall central count paper-based systems shall:					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
a. b. c.	Outstack the ballot, or Stop the ballot reader and display a message prompting the election official or designee to remove the ballot, or Mark the ballot with an identifying mark to facilitate its later identification.	Accept			F, R	
	Additionally, the system shall a capability that can be activated by an authorized election official to identify ballots containing overvotes, blank ballots, and ballots containing undervotes in a designated race. If enabled, these capabilities shall perform one of the above actions in response to the indicated condition	Accept			F, R	
3.2.5.1.3	Exception Handling (Precinct Count) This requirement refers to the handling of ballots for precinct count system when they are unreadable or when some condition is detected requiring that the cards be segregated from normally processed ballots for human review. All paper based precinct count systems shall:					
***VVSG 2005* 4.1.5.1.d.**	When ballots are unreadable or when some condition is detected requiring that the cards be segregated from normally processed ballots for human review. All paper based precinct count systems shall:	Accept	F -DS200		F, R	
a. ***VVSG 2005* 4.1.5.1.d.i.**	In response to an unreadable or blank ballot, return the ballot and provide a message prompting the voter to examine the ballot	Accept	F -DS200		F, R	
b ***VVSG 2005* 4.1.5.1.d.ii.**	In response to a ballot with a write-in vote, segregate the ballot or mark the ballot with an identifying mark to facilitate its later identification	Accept	F -DS200		F, R	
c 1) 2) 3) 4) 5) ***VVSG 2005* 4.1.5.1.iii.**	In response to a ballot with an overvote the system shall: • Provide a capability to identify an overvoted ballot • Return the ballot • Provide an indication prompting the voter to examine the ballot • Allow the voter to correct the ballot • Provide a means for an authorized election official to deactivate this capability entirely and by contest	Accept	F -DS200		F, R	
d. 1) 2) 3) 4) 5)	In response to a ballot with an undervote, the system shall: • Provide a capability to identify an undervoted ballot • Return the ballot • Provide an indication prompting the voter to examine the ballot • Allow the voter to submit the ballot with the undervote • Provide a means for an authorized election official to deactivate this capability	Accept			F, R	
***VVSG 2005* 4.1.5.1.iv.**	In response to a ballot with an undervote, the system shall: • Provide a capability to identify an undervoted ballot • Return the ballot • Provide an indication prompting the voter to examine the ballot • Allow the voter to correct the ballot • Allow the voter to submit the ballot with the undervote • Provide a means for an authorized election official to deactivate this capability	Accept	F -DS200			
3.2.5.1.4	Multiple Feed Prevention: Multiple feed refers to the situation arising when a ballot reader attempts to read more than one ballot at a time. The requirements govern the ability of a ballot reader to prevent multiple feed or to detect and provide an alarm indicating multiple feed.					
a.	If multiple feed is detected, the card reader shall halt in a manner that permits the operator to remove the unread cards causing the error, and reinsert them in the card input hopper	Accept			F	
b.	The frequency of multiple feeds with ballots intended for use with the system shall not exceed 1 in 10,000	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.2.5.2	Ballot Reading Accuracy This paper-based system requirement governs the conversion of the physical ballot into electronic data. Reading accuracy for ballot conversion refers to the ability to: ♦ Recognize vote punches or marks, or the absence thereof, for each possible selection on the ballot ♦ Discriminate between valid punches or marks and extraneous perforations, smudges, and folds ♦ Convert the vote punches or marks, or the absence thereof, for each possible selection on the ballot into digital signals To ensure accuracy, paper-based systems shall:					
a.	Detect punches or marks that conform to vendor specifications with an error rate not exceeding the requirement indicated in Section 3.2.1	Accept			F, R V1,2,4, 6-10	
b.	Ignore, and not record, extraneous perforations, smudges, and folds;	Accept			F, R	
c.	Reject ballots that meet all vendor specifications at a rate not to exceed 2 percent.	Accept			F, R, V1,2,4,6-10	1 incidence @ DS200 & M650 prompted for maintenance at iBeta
3.2.6	**Tabulation Processing Requirements**					
3.2.6.1	Paper-based Processing Requirements					
3.2.6.1.1	Processing Accuracy: Processing accuracy refers to the ability of the system to receive electronic signals produced by punches for punchcard systems and vote marks and timing information for marksense systems; perform logical and numerical operations upon these data; and reproduce the contents of memory when required, without error. Specific requirements are detailed below:					
a.	Processing accuracy shall be measured by vote selection error rate, the ratio of uncorrected vote selection errors to the total number of ballot positions that could be recorded across all ballots when the system is operated at its nominal or design rate of processing	Accept			See 3.2.6.1.1 d	There is no pass/fail criteria in this requirement. It is a definition of processing accuracy
b. ***VVSG 2005* 4.1.6.1.ii.**	The vote selection error rate shall include data that denotes ballot style or precinct as well as data denoting a vote in a specific contest or ballot proposition	Accept	F -DS200		F, R	
c. ***VVSG 2005* 4.1.6.1.iii.**	The vote selection error rate shall include all errors from any source	Accept	F -DS200		F, R	
d. ***VVSG 2005* 4.1.6.1.iv**	The vote selection error rate shall not exceed the requirement indicated in Subsection 4.1.1	Accept	F -DS200		F, R V1,2,4, 6-10	V1,2,6,7,9,10 -DS200
3.2.6.1.2	Paper-based system memory devices, used to retain control programs and data, shall have demonstrated error-free data retention for a period of 22 months under the environmental conditions for operation and non-operation (i.e. storage).	Accept			TDP	Attestation
3.2.6.2	DRE System Processing Requirements The DRE voting systems processing requirements address all mechanical devices, electromechanical devices, electronic devices, and software required to process voting data after the polls are closed.					
3.2.6.2.1	Processing Speed: DRE voting systems shall meet the following requirements for processing speed:					
a.	Operate at a speed sufficient to respond to any operator and voter input without perceptible delay (no more than three seconds)	Accept			F	VAT ballot marking; printing exceeds 3 seconds

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
b.	if the consolidation of polling place data is done locally, perform this consolidation in a time not to exceed five minutes for each device in the polling place	Accept			NA	No DRE
3.2.6.2.2	Processing Accuracy Processing accuracy is defined as the ability of the system to process voting data stored in DRE voting devices or in removable memory modules installed in such devices. Processing includes all operations to consolidate voting data after the polls have been closed. DRE voting systems shall:					
a.	Produce reports that are completely consistent, with no discrepancy among reports of voting device data produced at any level	Accept			F, R	
b.	Produce consolidated reports containing absentee, provisional or other voting data that are similarly error-free. Any discrepancy, regardless of source, is resolvable to a procedural error, to the failure of a non-memory device or to an external cause	Accept			F, R	
3.2.6.2.3	Memory Stability					
	DRE system memory devices used to retain control programs and data shall have demonstrated error-free data retention for a period of 22 months. Error-free retention may be achieved by the use of redundant memory elements, provided that the capability for conflict resolution or correction among elements is included.	Accept			NA	No DRE
3.2.7	**Reporting Requirements**					
3.2.7.1	Removable Storage Memory					
	All storage media that can be removed from the voting system and transported to another location for readout and report generation, these media shall use devices with demonstrated error-free retention for a period of 22 months under the environmental conditions for operation and non-operation contained in Section 3.2.2. Examples of removable storage media include: programmable read-only memory (PROM), random access memory (RAM) with battery backup, magnetic media or optical media.	Accept			TDP Review	Attestation from ESS
3.2.7.2	Printers All printers used to produce reports of the vote count shall be capable of producing:					
a.	Alphanumeric headers	Accept			F, R	
b.	Election, office and issue labels	Accept			F, R	
c.	Alphanumeric entries generated as part of the audit record.	Accept			F, R	
3.2.8 ***VVSG 2005*** **4.1.8**	**Vote Data Management Requirements** The vote data management requirements for all systems address capabilities that manage, process, and report voting data after the data has been consolidated at the polling place or other jurisdictional levels. These capabilities allow the system to:					
a.	Consolidate voting data from polling place data memory or transfer devices	Accept			F, R	
b.	Report polling place summaries; and	Accept			F, R	
c.	Process absentee ballots, data entered manually, and administrative ballot definition data.	Accept			F, R	
	The requirements address all hardware and software required to generate output reports in the various formats required by the using jurisdiction.	Accept			F, R	
VVSG 2005 **4.1.8**	• Consolidate voting data from polling place data memory or transfer devices • Report polling place summaries • Process absentee ballots, data entered manually, and administrative ballot definition data The requirements address all hardware and software required to generate output reports in the various formats required by the using jurisdiction.	Accept	F -DS200			

VSS 2002 *VVSG 2005*	**Certification Test Requirements:**	**Test Results**	**Unity 3.2.0.0 Revision 1**	**Comment**	**ESSUNITY 3200**	**Comment**
3.2.8.1 ***VVSG 2005 4.1.8.1***	Data File Management All voting systems shall provide the capability to:					
a ***VVSG 2005 4.1.8.1***	Integrate voting data files with ballot definition files	Accept	F -DS200		F, R	
b ***VVSG 2005 4.1.8.1***	Verify file compatibility.	Accept	F -DS200		F, R	
c. ***VVSG 2005 4.1.8.1***	Edit and update files as required.	Accept	F -DS200		F, R	
3.2.8.2	Data Report Generation:					
VVSG 2005 4.1.8.2	All voting systems shall include report generators for producing output reports at the device, polling place and summary level, with provisions for administrative and judicial subdivision as required by the using jurisdiction	Accept	F -DS200		F, R	
3.3	**Physical Characteristics**					
3.3.1	**Size**					
	There is no numerical limitation on the size of any voting equipment, but the size of each voting machine should be compatible with its intended use and the location at which the equipment is to be used.	Accept			F	RFI 2007-05
3.3.2	**Weight**					
	There is no numerical limitation on the weight of any voting equipment, but the weight of each voting machine should be compatible with its intended use and the location at which the equipment is to be used.	Accept			F	
3.3.3	**Transport and Storage of Precinct Systems:** All precinct voting systems shall:					
a.	Provide a means to safely and easily handle, transport, and install voting equipment, such as wheels or a handle or handles	Accept			F	No handling issues noted by iBeta
b. 1) 2)	Be capable of using, or be provided with, a protective enclosure rendering the equipment capable of withstanding: Impact, shock and vibration loads associated with surface and air transportation Stacking loads associated with storage	Accept			F	
3.4	**Design, Construction, and Maintenance Characteristics**					
3.4.1	**Materials Process and Parts** The approach to system design is unrestricted, and may incorporate any form or variant of technology capable of meeting the voting systems requirements and standards. Precinct count systems shall be designed in accordance with best commercial practice for microcomputers, process controllers, and their peripheral components. Central count voting systems and equipment used in a central tabulating environment shall be designed in accordance with best commercial and industrial practice. All voting systems shall:					
a.	Be designed and constructed so that the frequency of equipment malfunctions and maintenance requirements are reduced to the lowest level consistent with cost constraints.	Accept			F	
b.	Include, as part of the accompanying TDP, an approved parts list	Accept			F	
c.	Exclude parts or components not included in the approved parts list.	Accept			F	
3.4.2	**Durability**					
	All voting systems shall be designed to withstand normal use without deterioration and without excessive maintenance cost for a period of ten years.	Accept			F, TDP Review	RFI 2008-05 Attestation from ES&S
3.4.3	**Reliability**					

VSS 2002 *VVSG 2005*	**Certification Test Requirements:**	**Test Results**	**Unity 3.2.0.0 Revision 1**	**Comment**	**ESSUNITY 3200**	**Comment**
VVSG 2005 4.3.3	The reliability of voting system devices shall be measured as Mean Time Between Failure (MTBF) for the system submitted for testing. MBTF is defined as the value of the ratio of operating time to the number of failures which have occurred in the specified time interval. A typical system operations scenario consists of approximately 45 hours of equipment operation, consisting of 30 hours of equipment set-up and readiness testing and 15 hours of elections operations. For the purpose of demonstrating compliance with this requirement, a failure is defined as any event which results in either the: a. Loss of one or more functions b. Degradation of performance such that the device is unable to perform its intended function for longer than 10 seconds The MTBF demonstrated during certification testing shall be at least 163 hours.	Accept			E	See Section 6 field issue 2
3.4.4	**Maintainability:** Maintainability represents the ease with which maintenance actions can be performed based on the design characteristics of equipment and software and the processes the vendor and election officials have in place for preventing failures and for reacting to failures. Maintainability includes the ability of equipment and software to self-diagnose problems and make non-technical election workers aware of a problem. Maintainability addresses all scheduled and unscheduled events, which are performed to: • Determine the operational status of the system or a component; • Adjust, align, tune, or service components; • Repair or replace a component having a specified operating life or replacement interval; • Repair or replace a component that exhibits an undesirable predetermined physical condition or performance degradation; • Repair or replace a component that has failed; and • Verify the restoration of a component, or the system, to operational status. Maintainability shall be determined based on the presence of specific physical attributes that aid system maintenance activities, and the ease with which system maintenance tasks can be performed by the ITA. Although a more quantitative basis for assessing maintainability, such as the mean to repair the system is desirable, the qualification of a system is conducted before it is approved for sale and thus before a broader base of maintenance experience can be obtained.				F	
3.4.4.1	Physical Attributes The following physical attributes will be examined to assess reliability:					
a.	Presence of labels and the identification of test points	Accept			F	
b.	Provision of built-in test and diagnostic circuitry or physical indicators of condition	Accept			F	
c.	Presence of labels and alarms related to failures	Accept			F	
d.	Presence of features that allow non-technicians to perform routine maintenance tasks (such as update of the system database)	Accept			F	
3.4.4.2	Additional Attributes: The following additional attributes will be examined to assess maintainability:					
a.	Ease of detecting that equipment has failed by a non-technician	Accept			F	
b.	Ease of diagnosing problems by a trained technician	Accept			F	
c.	Low false alarm rates (i.e., indications of problems that do not exist)	Accept			F	
d.	Ease of access to components for replacement	Accept			F	
e.	Ease with which adjustment and alignment can be performed	Accept			F	
f.	Ease with which database updates can be performed by a non-technician	Accept			F	
g.	Adjust, align, tune or service components	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
3.4.5	**Availability***:* The availability of a voting system is defined as the probability that the equipment (and supporting software) needed to perform designated voting functions will respond to operational commands and accomplish the function. The voting system shall meet the availability standard for each of the following voting functions:					
a.	For all paper-based voting systems:	Accept			F, E	
1	Recording voter selections (such as by ballot marking or punch)	Accept			F, E	
2	Scanning the punches or marks on paper ballots and converting them into digital data	Accept			F, E	
b.	For all DRE systems, recording and storing voter ballot selections	Accept			F, E	
c.	For precinct count systems (paper-based and DRE), consolidation of vote selection data from multiple precinct based systems to generate jurisdiction-wide vote counts, including storage and reporting of the consolidated vote data	Accept			F, E	
d.	For central-count systems (paper-based and DRE), consolidation of vote selection data from multiple counting devices to generate jurisdiction-wide vote counts, including storage and reporting of the consolidated vote data	Accept			F, E	
	System availability is measured as the ratio of the time during which the system is operational (up time) to the total time period of operation (up time plus down time). Inherent availability (Ai) is the fraction of time a system is functional, based upon Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR), that is: Ai = (MTBF)/(MTBF + MTTR) MTTR is the average time required to perform a corrective maintenance task during periods of system operation. Corrective maintenance task time is active repair time, plus the time attributable to other factors that could lead to logistic or administrative delays, such as travel notification of qualified maintenance personnel and travel time for such personnel to arrive at the appropriate site. Corrective maintenance may consist of substitution of the complete device or one of its components, as in the case of precinct count and some central count systems, or it may consist of on-site repair. The voting system shall achieve at least 99 percent availability during normal operation for the functions indicated above. This standard encompasses for each function the combination of all devices and components that support the function, including their MTTR and MTBF attributes.	Accept			F, E	
	Vendors shall specify the typical system configuration that is to be used to assess availability, and any assumptions made with regard to any parameters that impact the MTTR. These factors shall include at a minimum:	Accept			F	
a.	Recommended number and locations of spare devices or components to be kept on hand for repair purposes during periods of system operation	Accept			F	
b.	Recommended number and locations of qualified maintenance personnel who need to be available to support repair calls during system operation. Organizational affiliation (i.e., jurisdiction, vendor) of qualified maintenance personnel	Accept			F	
c.	Organizational affiliation (i.e., jurisdiction, vendor) of qualified maintenance personnel	Accept			F	
3.4.6	**Product Marking:** All voting systems shall:					
a.	Identify all devices with a permanently affixed nameplate or label containing the name of the manufacturer or vendor, the name of the device, its part or model number, its revision letter, its serial number, and if applicable, its power requirements	Accept			F	
b.	Display on each device a separate data plate containing a schedule for and list of operations required to service or to perform preventive maintenance	Accept			F	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
c.	Display advisory caution and warning instructions to ensure safe operation of the equipment and to avoid exposure to hazardous electrical voltages and moving parts at all locations where operation or exposure may occur	Accept			F	
3.4.7	**Workmanship:** To help ensure proper workmanship, all manufacturers of voting systems shall:					
a.	Adopt and adhere to practices and procedures to ensure their products are free from damage or defect that could make them unsatisfactory for their intended purpose	Accept			F	
b.	Ensure components provided by external suppliers are free from damage or defect that could make them unsatisfactory for their intended purpose.	Accept			F	
3.4.8	**Safety:** All voting systems shall meet the following requirements for safety:					RFI 2008-09
a.	All voting system and their components shall be designed to eliminate hazards to personnel or the equipment itself.	Accept			E	
b.	Defects in design and construction that can result in personal injury or equipment damage must be detected and corrected before voting systems and components are placed into service.	Accept			E	
c.	Equipment design for personnel safety is equal to or better than the appropriate requirements of the Occupational Safety and Health Act, Code of Federal Regulations, as identified in Title 29, part 1910	Accept			E	
3.4.9	**Human Engineering- Controls and Displays** All voting systems and components shall be designed and constructed so as to simplify and facilitate the functions required , and to eliminate the likelihood of erroneous stimuli and responses on the part of the voter or operator. All voting systems shall meet the following requirements for controls and displays:					
a.	In all systems, controls used by the voter or equipment operator shall be conveniently located, shall use designs consistent with their functions, and shall be clearly labeled. Instruction plates are provided, if necessary to avoid ambiguity or incorrect actuation.	Accept			F	
b.	Information or data displays are large enough to be readable by voters and operators with no disabilities and by voters with disabilities consistent with the requirements defined is Section 2.2.7 of the Standards.	Accept			F	
c.	Status displays meet the same requirements as data displays, and they shall also follow conventional industrial practice with respect to color:	Accept			F	
1	Green, blue, or white displays shall be used for indications of normal status;	Accept			F	
2	Amber indicators shall be used to indicate warnings or marginal status; and	Accept			F	
3	Red indicators shall be used to indicate error conditions or equipment states that may result in damage or hazard to personnel; and unless the equipment is designed to halt under conditions of incipient damage or hazard, an audible alarm is also be provided.	Accept			F	
d.	Color coding shall be selected so as to assure correct perception by voters and operators with color blindness; and shall not bet used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element (see Appendix C for suggested references).	Accept			F	
e.	The system's display does not use flashing or blinking text objects, or other elements having a flash or blink frequency, greater than 2 Hz and lower than 55 Hz	Accept			F	
4	**Software Standards**					
4.1.1	**Software Sources**					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
4.2	**Source Design and Coding Standards** The software used by voting systems is selected by the vendor and not prescribed by the Standards. This sections provides standards for voting system software with regard to: • Selection of programming languages • Software integrity • Software modularity and programming; • Control constructs; • Naming conventions; • Coding conventions; and • Comment conventions.					
4.3	**Data and Document Retention :** All systems shall:					
a.	Maintain the integrity of voting and audit data during an election, and for at least 22 months thereafter, a time sufficient to resolve most contested elections and support other activities related to the reconstruction and investigation of a contested election	Accept			TDP Review	Attestation from ESS
b.	Protect against the failure of any data input or storage device at a location controlled by the jurisdiction or its contractors, and against any attempt at improper data entry or retrieval	Accept			S, V4	
4.4	**Audit Record Data**					
	Audit trails are essential to ensure the integrity of a voting system. Operational requirements for audit trails are described in Subsection 2.2.5.2 of the Standards. Audit record data are generated by these procedures. The audit record data in the following subsections are essential to the complete recording of election operations and reporting of the vote tally. This list of audit records may not reflect the design constructs of some systems. Therefore, vendors shall supplement it with information relevant to the operation of their specific systems.	Accept			F, S	Document review
4.4.1	**Pre-election Audit Records**					
	During election definition and ballot preparation, the system shall audit the preparation of the baseline ballot formats and modifications to them, a description of these modifications, and corresponding dates. The log shall include:	Accept			F,R	
a.	The allowable number of selections for an office or issue;	Accept			F, R	
b.	The combinations of voting patterns permitted or required by the jurisdiction	Accept			F, R	
c.	The inclusion or exclusion of offices or issues as the result of multiple districting within the polling place	Accept			F, R	
d.	Any other characteristics that may be peculiar to the jurisdiction, the election, or the polling place's location	Accept			F, R	
e.	Manual data maintained by election personnel	Accept			F, R	
f.	Samples of all final ballot formats	Accept			F, R	
g.	Ballot preparation edits listings.	Accept			F, R	
4.4.2	**System Readiness Audit Records** The following minimum requirements apply to system readiness audit records:					
a.	Prior to the start of ballot counting, a system process shall verify hardware and software status and generate a readiness audit record. This record shall include the identification of the software release, the identification of the election to be processed, and the results of software and hardware diagnostic tests	Accept			F, R	
b.	In the case of systems used at the polling place, the record shall include polling place identification	Accept			F, R	
c.	The ballot interpretation logic shall test and record the correct installation of ballot formats on voting devices	Accept			F, R	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
d.	The software shall check and record the status of all data paths and memory locations to be used in vote recording to protect against contamination of voting data	Accept			F, R	
e.	Upon the conclusion of the tests, the software shall provide evidence in the audit record that the test data have been expunged	Accept			F, R	
f.	If required and provided, the ballot reader and arithmetic-logic unit shall be evaluated for accuracy, and the system shall record the results. It shall allow the processing or simulated processing of sufficient test ballots to provide a statistical estimate of processing accuracy	Accept			F	
g. 1) 2) 3) 4)	For systems that use a public network, provide a report of test ballots that includes: Number of ballots sent When each ballot was sent Machine from which each ballot was sent specific votes or selections contained in the ballot	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
4.4.3	**In-Process Audit Records :**In-process audit records document system operations during diagnostic routines and the casting and tallying of ballots. At a minimum, the in-process audit records shall contain:					RFI 2008-07
a.	Machine generated error and exception messages to demonstrate successful recovery. Examples include, but are not necessarily limited to:	Accept			V1-10	Code review v.1:4.2.3e
1)	The source and disposition of system interrupts resulting in entry into exception handling routines	Accept			V1-10. F, R	
2)	All messages generated by exception handlers	Accept			V1-10, F, R	
3)	The identification code and number of occurrences for each hardware and software error or failure	Accept			F, R	
4)	Notification of system login or access errors, file access errors, and physical violations of security as they occur, and a summary record of these events after processing	Accept			S	
5)	Other exception events such as power failures, failure of critical hardware components, data transmission errors or other types of operating anomalies	Accept			S	
b.	Critical system status messages other than informational messages displayed by the system during the course of normal operations. These items include, but are not limited to:	Accept			F, R, S	v.2: 3.3.1
1)	Diagnostic and status messages upon startup	Accept			F, R	
2)	The “zero totals” check conducted before opening the polling place or counting a precinct centrally	Accept			F, R, S	v.2: 3.3.1
3)	For paper-based systems, the initiation or termination of card reader and communications equipment operation	Accept			F, R	
4)	For DRE machines at controlled voting locations, the event (and time, if available) of activating and casting each ballot (i.e., each voter's transaction as an event). This data can be compared with the public counter for reconciliation purposes	Accept			F	VAT ballot printing
c.	Non-critical status messages that are generated by the machine's data quality monitor or by software and hardware condition monitors	Accept			F	
d.	System generated log of all normal process activity and system events that require operator intervention, so that each operator access can be monitored and access sequence can be constructed	Accept			F, R, S	v.2: 3.3.1

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
4.4.4	**Vote Tally Data:** In addition to the audit requirements described above, other election-related data is essential for reporting results to interested parties, the press, and the voting public, and is vital to verifying an accurate count. Voting systems shall meet these reporting requirements by providing software capable of obtaining data concerning various aspects of vote counting and producing printed reports. At a minimum, vote tally data shall include:					
a. ***VVSG 2005* 5.4.4.a**	Number of ballots cast, using each ballot configuration, by tabulator, by precinct, and by political subdivision	Accept	F-DS200	Discrepancy #1 Closed	F, R	
b.	Candidate and measure vote totals for each contest, by tabulator	Accept			F, R	
c.	The number of ballots read within each precinct and for additional jurisdictional levels, by configuration, including separate totals for each party in primary elections	Accept			F, R	
d.	Separate accumulation of overvotes and undervotes for each contest, by tabulator, precinct and for additional jurisdictional levels (no overvotes would be indicated for DRE voting devices)	Accept			F, R	
e.	For paper-based systems only, the total number of ballots both able to be processed and unable to be processed; and if there are multiple card ballots, the total number of cards read	Accept			F, R	
	For systems that produce an electronic file containing vote tally data, the contents of the file shall include the same minimum data cited above for printed vote tally reports.	Accept			F, R	
4.5	**Voter Secrecy on DRE Systems:** All DRE systems shall ensure vote secrecy by:					
a.	Immediately after the voter chooses to cast his or her ballot, record the voter's selections in the memory to be used for vote counting and audit data (including ballot images), and erase the selections from the display, memory, and all other storage, including all forms of temporary storage	Accept			S	Post printing on the VAT
b.	Immediately after the voter chooses to cancel his or her ballot, erase the selections from the display and all other storage, including buffers and other temporary storage	Accept			S	Pre-printing on the VAT
5	**Telecommunications**					
5.2	**Design, Construction, and Maintenance Requirement**					
	Design, construction, and maintenance requirements for telecommunications represent the operational capability of both system hardware and software. These capabilities shall be considered basic to all data transmissions.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.1	**Accuracy**					
	The telecommunications components of all voting systems shall meet the accuracy requirements of 3.4.1.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.2	**Durability**					
	The telecommunications components of all voting systems shall meet the Durability requirements of 3.4.2.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.3	**Reliability**					
	The telecommunications components of all voting systems shall meet the Reliability requirements of 3.4.3.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.4	**Maintainability**					
	The telecommunications components of all voting systems shall meet the maintainability requirements of 3.4.4.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.5	**Availability**					
	The telecommunications components of all voting systems shall meet the availability requirements of 3.4.5.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.6	**Integrity:** For WANs using public telecommunications, boundary definition and implementation shall meet the requirements below.					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
a.	Outside service providers and subscribers of such providers shall not be given direct access or control of any resource inside the boundary.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Voting system administrators shall not require any type of control of resources outside this boundary. Typically, an end point of a telecommunications circuit will be a subscriber termination on a Digital Service Unit/Customer Service Unit although the specific technology configuration may vary. Regardless of the technology used, the boundary point must ensure that everything on the voting system side is locally configured and controlled by the election jurisdiction while everything on the public network side is controlled by an outside service provider.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
c.	The system shall be designed and configured such that it is not vulnerable to a single point of failure in the connection to the public network which could cause total loss of voting capabilities at any polling place.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
5.2.7	**Confirmation:** Confirmation occurs when the system notifies the user of the successful or unsuccessful completion of the data transmission, where successful completion is defined as accurate receipt of the transmitted data. To provide confirmation, the telecommunications components of a voting system shall					
d.	Notify the user of the successful or unsuccessful completion of the data transmission; and	Accept			S, T	No network trans-mission; see 2.2.2.1 d & e
e.	In the event of unsuccessful transmission, notify the user of the action to be taken.	Accept			S, T	No network trans-mission; see 2.2.2.1 d & e
6	**Security Standards**					
6.2	**Access Controls**					
6.2.1	**Access Control Policy**					
6.2.1.1	General Access Control Policy					RFI 2008-03
	Although the jurisdiction in which the voting system is operated is responsible for determining the access policies for each election, the vendor shall provide a description of recommended policies for:	Accept			S- Doc Review	
a.	Software access controls;	Accept			S- Doc Review	
b.	Hardware access controls;	Accept			S- Doc Review	
c.	Communications;	Accept			S- Doc Review	Networking is disabled
d.	Effective password management;	Accept			S- Doc Review	
e.	Protection abilities of a particular operating system;	Accept			S- Doc Review	
f.	General characteristics of supervisory access privileges;	Accept			S- Doc Review	
g.	Segregation of duties; and	Accept			S- Doc Review	
h.	Any additional relevant characteristics.	Accept			S- Doc Review	
6.2.1.2	Individual Access Privileges: Voting system vendors shall:					
a.	Identify each person to whom access is granted, and the specific functions and data to which each person holds authorized access	Accept			S- Doc Review	
b.	Specify whether an individual's authorization is limited to a specific time, time interval or phase of the voting or counting operations	Accept			S- Doc Review	
c.	Permit the voter to cast a ballot expeditiously, but preclude voter access to all aspects of the vote counting processes	Accept			S- Doc Review	

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
6.2.2	**Access Control Measures**: Vendors shall provide a detailed description of all system access control measures designed to permit authorized access to the system and prevent unauthorized access, such as:					
a.	Use of data and user authorization	Accept			S- Doc & Review	
b.	Program unit ownership and other regional boundaries	Accept			S- Doc Review	
c.	One-end or two-end port protection devices	Accept			S- Doc Review	
d.	Security kernels	Accept			S- Doc Review	
e.	Computer-generated password keys	Accept			S- Doc & Code Review	
f.	Special protocols	Accept			S- Doc Review	
g.	Message encryption and	Accept			S- Doc & Code Review	
h.	Controlled access security.	Accept			S- Doc Review	
	Vendors also shall define and provide a detailed description of the methods used to prevent unauthorized access to the access control capabilities of the system itself.	Accept			S- Doc Review	
6.3	**Physical Security Measures**					
	A voting system's sensitivity to disruption or corruption of data depends, in part, on the physical location of equipment and data media, and on the establishment of secure telecommunications among various locations. Most often, the disruption of voting and vote counting results from a physical violation of one or more areas of the system thought to be protected. Therefore, security procedures shall address physical threats and the corresponding means to defeat them.	Accept			S- Doc Review	
6.3.1	**Polling Place Security:** For polling place operations, vendors shall develop and provide detailed documentation of measures anticipate and counteract vandalism, civil disobedience, and similar occurrences. The measures shall.					
a.	Allow the immediate detection of tampering with vote casting devices and precinct ballot counters.	Accept			S- Doc Review	
b.	Control physical access to a telecommunications link if such a link is used	Accept			S- Doc Review	
6.3.2	**Central Count Location Security**					
a. b. c. d.	Vendors shall develop and document in detailed measures to be taken in a central counting environment. These measures shall include physical and procedural controls related to the Handling of ballot boxes Preparing of ballots for counting Counting operations and Reporting data	Accept			S- Doc Review	
6.4	**Software Security**					
6.4.1	**Software and Firmware Installation** The system shall meet the following requirements for installation of software, including hardware with embedded firmware.					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
a.	If software is resident in the system as firmware, the vendor shall require and state in the system documentation that every device is to be retested to validate each ROM prior to the start of elections operations.	Accept			S- Doc Review	
b.	To prevent alteration of executable code, no software shall be permanently installed or resident in the voting system unless the system documentation states that the jurisdiction must provide a secure physical and procedural environment for the storage, handling, preparation, and transportation of the system hardware.	Accept			S	
c.	The voting system bootstrap, monitor, and device-controller software may be resident permanently as firmware, provided that this firmware has been shown to be inaccessible to activation or control by any means other than by the authorized initiation and execution of the vote counting program, and its associated exception handlers.	Accept			S	
d.	The election-specific programming may be installed and resident as firmware, provided that such firmware is installed on a component (such as a computer chip) other than the component on which the operating system resides.	Accept			S	
e.	After initiation of election day testing, no source code or compilers or assemblers shall be resident or accessible.	Accept			S	
6.4.2	**Protection Against Malicious Software:** Voting systems shall deploy protection against the many forms of threats to which they may be exposed such as file and macro viruses, worms, Trojan horses, and logic bombs					
	Vendors shall develop and document the procedures to be followed to ensure that such protection is maintained in a current status.	Accept			S	
6.5	**Telecommunications and Data Transmission**					
6.5.1	**Access Controls**					
	Voting systems that use telecommunications to communicate between system components and locations are subject to the same security requirements governing access to any other system hardware, software, and data function.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.2	**Data Integrity**					
	Voting systems that use electrical or optical transmission of data shall ensure the receipt of valid vote records is verified at the receiving station. This should include standard transmission error detection and correction methods such as checksums or message digest hashes. Verification of correct transmission shall occur at the voting system application level and ensure that the correct data is recorded on all relevant components consolidated within the polling place prior to the voter completing casting of his or her ballot.	Accept			S, T	No transmission within the polls prior to voter casting their ballot
6.5.3	**Data Interception Prevention** Voting systems that use telecommunications to communicate between system components and locations before the polling place is officially closed shall:					
a.	Implement an encryption standard currently documented and validated for use by an agency of the U.S. Federal Government and	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Provide a means to detect the presence of an intrusive process, such as an Intrusion Detection System.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.4	**Protection Against External Threats**					
	Voting systems that use public telecommunications networks shall implement protections against external threats to which commercial products used in the system may be susceptible.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.4.1	Identification of COTS Products					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
a. b. c. d.	Voting systems that use public telecommunications networks shall provide system documentation that clearly identifies all COTS hardware and software products and communications services used in the development and/or operation of the voting system, including operating systems, communications routers, modem drivers and dial-up networking software.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	Such documentation shall identify the name, vendor, and version used for each such component.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.4.2	Use of Protective Software					
	Voting systems that use public telecommunications networks shall use protective software at the receiving-end of all communications paths to:	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
a.	Detect the presence of a threat in a transmission	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Remove the threat from infected files/data	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
c.	Prevent against storage of the threat anywhere on the receiving device	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
d.	Provide the capability to confirm that no threats are stored in system memory and in connected storage media	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
e.	Provide data to the system audit log indicating the detection of a threat and the processing performed	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
	Vendors shall use multiple forms of protective software as needed to provide capabilities for the full range of products used by the voting system.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.4.3	Monitoring and Responding to External Threats					
	Voting system that use public telecommunications networks may become vulnerable, by virtue of their system components, to external threats to the accuracy and integrity of vote recording, vote counting, and vote consolidation and reporting processes. Therefore, vendors of such systems shall document how they plan to monitor and respond to known threats to which their voting systems are vulnerable. This documentation shall provide a detailed description, including scheduling information, of the procedures the vendor will use to:	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
a.	Monitor threats, such as through the review of assessments, advisories, and alerts for COTS components issued by the Computer Emergency Response Team (CERT), for which a current listing can be found at http://www.cert.org, the National Infrastructure Protection Center (NIPC), and the Federal Computer Incident Response Capability (FedCIRC), for which additional information can be found at www.uscert.gov	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Evaluate the threats and, if any, proposed responses	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
c.	Develop responsive updates to the system and/or corrective procedures	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
d.	Submit the proposed response to the test labs and appropriate states for approval, identifying the exact changes and whether or not they are temporary or permanent	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
e.	After implementation of the proposed response is approved by the state, assist clients, either directly or through detailed written procedures, how to update their systems and/or to implement the corrective procedures within the timeframe established by the state	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
f.	Address threats emerging too late to correct the system by:	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
1	Providing prompt, emergency notification to the accredited test labs and the affected states and user jurisdictions	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
2	Assisting client jurisdictions directly or advising them through detailed written procedures to disable the public telecommunications mode of the system	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
3	Modifying the system after the election to address the threat, submitting the modified system to an accredited test lab and the EAC or state certification authority for approval, and assisting client jurisdictions directly or advising them through detailed written procedures, to update their systems and/or to implement the corrective procedures after approval	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.5.5	**Shared Operating Environment:** Ballot recording and vote counting can be performed in either a dedicated or non-dedicated environment. If ballot recording and vote counting operations are performed in an environment that is shared with other data processing functions, both hardware and software features shall be present to protect the integrity of vote counting and of vote data. Systems that use a shared operating environment shall:					
a.	Use security procedures and logging records to control access to system functions	Accept			S	Network disabled in Unity 3.2.0.0
b.	Partition or compartmentalize voting system functions from other concurrent functions at least logically, and preferably physically as well	Accept			S	Network disabled in Unity 3.2.0.0
c.	Control system access by means of passwords, and restrict account access to necessary functions only	Accept			S	Network disabled in Unity 3.2.0.0
d.	Have capabilities in place to control the flow of information, precluding data leakage through shared system resources	Accept			S	Network disabled in Unity 3.2.0.0
6.5.6	**Access to Incomplete Election Returns and Interactive Queries :** If the voting system provides access to incomplete election returns and interactive inquiries before the completion of the official count, the system shall:					
a.	Be designed to provide external access to incomplete election returns (for equipment that operates in a central counting environment), only if that access for these purposes is authorized by the statutes and regulations of the using agency. This requirement applies as well to polling place equipment that contains a removable memory module or that may be removed in its entirety to a central place for the consolidation of polling place returns	Accept			S	No access to incomplete returns
b.	Design voting system software and its security environment such that data accessible to interactive queries resides in an external file or database created and maintained by the elections software under the restrictions applying to any other output report:	Accept			S	No external access
1	The output file or database has no provision for write-access back to the system.	Accept			S	No write back provision
2	Persons whose only authorized access is to the file or database are denied write-access, both to the file or database, and to the system.	Accept			S	No external access
6.6	**Security for Transmission of Official Data Over Public Communications Networks**					
6.6.1	**General Security Requirements for Systems Transmitting Data Over Public Networks** All systems that transmit data over public telecommunications networks shall:					
a.	Preserve the secrecy of voter ballot selections and prevent anyone from violating ballot privacy	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Employ digital signatures for all communications between the vote server and other devices that communicate with the server over the network	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
c.	Require that at least two authorized election officials activate any critical operation regarding the processing of ballots transmitted over a public communications network, i.e. the passwords or cryptographic keys of at least two employees are required to perform processing of vote	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
6.6.2	**Voting Process Security for Casting Individual Ballots over a Public Telecommunications Network**					
	Systems designed for transmission of telecommunications over public networks shall meet security standards that address the security risks attendant with the casting of ballots from polling places controlled by election officials using voting devices configured and installed by election officials and/or their vendor or contractor, and using in-person authentication of individual voters.	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.6.2.1	Documentation of Mandatory Security Activities: Vendors of voting systems that cast individual ballots over a public telecommunications network shall provide detailed descriptions of:					
a.	All activities mandatory to ensuring effective voting system security to be performed in setting up the system for operation, including testing of security before an election	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	All activities that should be prohibited during voting equipment setup and during the time-frame for voting operations, including both the hours when polls are open and when polls are closed	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
6.6.2.2	Capabilities to Operate During Interruption of Telecommunications Capabilities These systems shall provide the following capabilities to provide resistance to interruptions of telecommunications service that prevent voting devices at the polling place from communicating with external components via telecommunications:					
a.	Detect the occurrence of a telecommunications interruption at the polling place and switch to an alternative mode of operation that is not dependent on the connection between polling place voting devices and external system components	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
b.	Provide an alternate mode of operation that includes the functionality of a conventional electronic voting system without losing any single vote	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
c.	Create and preserve an audit trail of every vote cast during the period of interrupted communication and system operation in conventional electronic voting system mode	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
d.	Upon reestablishment of communications, transmit and process votes accumulated while operating in conventional electronic voting system mode with all security safeguards in effect	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
e.	Ensure that all safeguards related to voter identification and authentication are not affected by the procedures employed by the system to counteract potential interruptions of telecommunications capabilities	Accept			S, T	Telecommunications is disabled in Unity 3.2.0.0
7	**Quality Assurance Requirements**					
7.2	**General Requirements :** The voting system vendor is responsible for designing and implementing a quality assurance program to ensure that the design, workmanship, and performance requirements of this standard are achieved in all delivered systems and components. At a minimum, this program shall:					
a.	Include procedures for specifying, procuring, inspecting, accepting, and controlling parts and raw materials of the requisite quality.	Accept			F	
b.	Require the documentation of the hardware and software development process.	Accept			F	
c.	Identify and enforce all requirements for:	Accept			F	
c. 1)	In-process inspection and testing that the manufacturer deems necessary to ensure proper fabrication and assembly of hardware.	Accept			F	
c. 2)	Installation and operation of software (including firmware).	Accept			F	
d.	Include the plans and procedures for post-production environmental screening and acceptance testing.	Accept			F	
e.	Include a procedure for maintaining all data and records required to document and verify the quality inspections and tests.	Accept			F	
7.3	**Components from Third Parties**					

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
	A vendor who does not manufacture all the components of its voting system, but instead procures components as standard commercial items for assembly and integration into a voting system, shall verify that the supplier vendors follow documented quality assurance procedures that are at least as stringent as those used internally by the voting system vendor.	Accept			F	
7.4	**Responsibility for Tests::** Manufacturer or vendor shall be responsible for:					
a.	Performing all quality assurance tests.	Accept			F	
b.	Acquiring and documenting test data.	Accept			F	
c.	2002: Providing test reports for review by the ITA, and to the purchaser upon request.	Accept			F	
7.5	**Parts and Materials Special Tests:** In order to ensure that voting system parts and materials function properly, vendors shall:					
a.	Select parts and materials to be used in voting systems and components according to their suitability for the intended application. Suitability may be determined by similarity of this application to existing standard practice, or by means of special tests.	Accept			F	
b.	Design special tests, if needed, to evaluate the part or material under conditions accurately simulating the actual operating environment.	Accept			F	
c.	Maintain the resulting test data as part of the quality assurance program documentation.	Accept			F	
7.6	**Parts and Materials Special Tests** The vendor performs conformance inspections to ensure the overall quality of the voting system and components delivered to the ITA for testing and to the jurisdiction for implementation. To meet the conformance inspection requirements the vendor or manufacturer shall::					
a.	Inspect and test each voting system or component to verify that it meets all inspection and test requirements for the system.	Accept			F	
b.	Deliver a record of tests or a certificate of satisfactory completion with each system or component.	Accept			F	
7.7	**Documentation:** Vendors are required to produce documentation to support the development and formal testing of voting systems. To meet documentation requirements, vendors shall provide complete product documentation with each voting systems or components, as described Volume II, Section 2 for the TDP. This documentation shall:					
a. b. c	Be sufficient to serve the needs of the ITA, voters, election officials, and maintenance technicians; Be prepared and published in accordance with standard industrial practice for information technology and electronic and mechanical equipment; and Consist, at a minimum, of the following: 1) System overview; 2) System functionality description; 3) System hardware specification; 4) Software design and specifications; 5) System security specification; 6) System test and verification specification; 7) System operations procedures;	Accept			F	Letter of reuse; Appendix C for LogMonitor
8	**Configuration Management**					
8.1	**Scope**					
8.1.1	**Configuration Management Requirements:** Configuration management addresses a broad set of record keeping, audit, and reporting activities that contribute to full knowledge and control of a system and its components. These activities include:					
	▪ Identifying discrete system components.	Accept			F	Letter of Reuse PCA Doc Review

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
	▪ Creating records of a formal baseline and later versions of components.	Accept			F	Letter of Reuse PCA Doc Review Inconsistencies in CM observed in testing were noted #143 & 160
	▪ Controlling changes made to the system and its components.	Accept			F	Letter of Reuse PCA Doc Review Inconsistencies in CM observed in testing were noted #143 & 160
	▪ Releasing new versions of the system to ITAs.	Accept			F	Letter of Reuse PCA Doc Review Inconsistencies in CM observed in testing were noted #143 & 160
	▪ Releasing new versions of the system to customers.	Accept			F	Letter of Reuse PCA Doc Review
	▪ Auditing the system, including its documentation, against configuration management records.	Accept			F	Letter of Reuse PCA Doc Review
	▪ Controlling interfaces to other systems.	Accept			F	Letter of Reuse PCA Doc Review
	▪ Identifying tools used to build and maintain the system.	Accept			F	Letter of Reuse PCA Doc Review
8.1.2	**Organization of Configuration Management Standards**					
8.1.3	Application of Configuration Management Standards: Requirements for configuration management apply regardless of the specific technologies employed to all voting systems subject to the Standards. These system components include:					
a.	Software components.	Accept			F	Letter of Reuse PCA Doc Review
b.	Hardware components.	Accept			F	Letter of Reuse PCA Doc Review
c.	Communications components.	Accept			F	Letter of Reuse PCA Doc Review
d.	Documentation.	Accept			F	Letter of Reuse PCA Doc Review
e.	Identification and naming and conventions (including changes to these conventions) for software programs and data files.	Accept			F	Letter of Reuse PCA Doc Review
f.	Development and testing artifacts such as test data and scripts.	Accept			F	Letter of Reuse PCA Doc Review
g.	File archiving and data repositories.	Accept			F	Letter of Reuse PCA Doc Review
8.2	**Configuration Management Policy:** The vendor shall describe its policies for configuration management in the TDP. This description shall address the following elements					
a.	Scope and nature configuration management program activities.	Accept			F	Letter of Reuse PCA Doc Review
b.	Breadth of the application of the vendor's policies and practices to the voting system. (i.e. extent to which policies and practices apply to the total system and extent to which polices and practices of suppliers apply to particular components, subsystems, or other defined system elements.	Accept			F	Letter of Reuse PCA Doc Review
8.3	**Configuration Identification**					
8.3.1	**Structuring and Naming Configuration Items** The vendor shall describe the procedures and conventions used to:					
a.	Classify configuration items into categories and subcategories.	Accept			F	Letter of Reuse PCA Doc Review
b.	Uniquely number or otherwise identify configuration items.	Accept			F	Letter of Reuse PCA Doc Review
c.	Name configuration items.	Accept			F	Letter of Reuse PCA Doc Review
8.3.2	**Version Conventions** When a system component is used to identify higher-level system elements, a vendor shall describe the conventions used to:					
a.	Identify the specific versions of individual configuration items and sets of items that are used by the vendor to identify higher level system elements such as subsystems.	Accept			F	Letter of Reuse PCA Doc Review
b.	Uniquely number or otherwise identify versions.	Accept			F	Letter of Reuse PCA Doc Review
c.	Name versions.	Accept			F	Letter of Reuse PCA Doc Review

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
8.4	**Baseline, Promotion and Demotion Procedures:** The vendor shall establish formal procedures and conventions for establishing and providing a complete description of the procedures and related conventions used to:					
a.	Establish a particular instance of a component as the starting baseline.	Accept			F	Letter of Reuse PCA Doc Review
b.	Promote subsequent instances of a component to baseline status as development progresses through to completion of the initial completed version released to the ITAs for qualification testing.	Accept			F	Letter of Reuse PCA Doc Review
c.	Promote subsequent instances of a component to baseline status as the component is maintained throughout its life cycle until system retirement (i.e., the system is no longer sold or maintained by the vendor).	Accept			F	Letter of Reuse PCA Doc Review
8.5	**Configuration Control Procedures:** Configuration control is the process of approving and implementing changes to a configuration item to prevent unauthorized additions, changes, or deletions. The vendor shall establish such procedures and related conventions, providing a complete description of those procedures used to:					
a.	Develop and maintain internally developed items.	Accept			F	Letter of Reuse PCA Doc Review
b.	Acquire and maintain third-party items.	Accept			F	Letter of Reuse PCA Doc Review
c.	Resolve internally identified defects for items regardless of their origin.	Accept			F	Letter of Reuse PCA Doc Review
d.	Resolve externally identified and reported defects (i.e., by customers and ITAs).	Accept			F	Letter of Reuse PCA Doc Review
8.6	**Release Process Procedures:** The release process is the means by which the vendor installs, transfers, or migrates the system to the ITAs and, eventually, to its customers. The vendor shall establish such procedures and related conventions, providing a complete description of those used to:					
a.	Perform a first release of the system to:	Accept			F	Letter of Reuse PCA Doc Review
b.	Perform a subsequent maintenance or upgrade release of the system, or a particular components, to:	Accept			F	Letter of Reuse PCA Doc Review
c.	Perform the initial delivery and installation of the system to a customer, including confirmation that the installed version of the system matches exactly the certified system version.	Accept			F	Letter of Reuse PCA Doc Review
d.	Perform a subsequent maintenance or upgrade release of the system, or a particular component, to a customer, including confirmation that the installed version of the system matches exactly the qualified system version.	Accept			F	Letter of Reuse PCA Doc Review
8.7	**Configuration Audits**					
8.7.1	**Physical Configuration Audit:** The PCA is conducted by the ITA to compare the voting system components submitted for qualification to the vendor's technical documentation. For the PCA, a vendor shall provide:					
a.	Identification of all items that are to be a part of the software release.	Accept			F	Letter of Reuse PCA Doc Review
b.	Specification of compiler (or choice of compilers) to be used to generate executable programs.	Accept			F	Letter of Reuse PCA Doc Review
c.	Identification of all hardware that interfaces with the software.	Accept			F	Letter of Reuse PCA Doc Review
d.	Configuration baseline data for all hardware that is unique to the system.	Accept			F	Letter of Reuse PCA Doc Review
e.	Copies of all software documentation intended for distribution to users, including program listings, specifications, operations manual, voter manual, and maintenance manual.	Accept			F	Letter of Reuse PCA Doc Review
f.	User acceptance test procedures and acceptance criteria.	Accept			F	Letter of Reuse PCA Doc Review
g.	Identification of any changes between the physical configuration of the system submitted for the PCA and that submitted for the FCA, with a certification that any differences do not degrade the functional characteristics.	Accept			F	Letter of Reuse PCA Doc Review
h.	Complete descriptions of its procedures and related conventions used to support this audit by:	Accept			F	Letter of Reuse PCA Doc Review
h. 1)	Establishing a configuration baseline of the software and hardware to be tested.	Accept			F	Letter of Reuse PCA Doc Review

VSS 2002 *VVSG 2005*	Certification Test Requirements:	Test Results	Unity 3.2.0.0 Revision 1	Comment	ESSUNITY 3200	Comment
h. 2)	Confirming whether the system documentation matches the corresponding system components.	Accept			F	Letter of Reuse PCA Doc Review
8.7.2	**Functional Configuration Audits** The FCA is conducted by the ITA to verify that the system performs all the functions described in the system documentation. The vendor shall:					
a.	Completely describe its procedures and related conventions used to support this audit for all system components.	Accept			F	Letter of Reuse PCA Doc Review
b.	Provide the following information to support this audit:	Accept			F	Letter of Reuse PCA Doc Review
b. 1)	Copies of all procedures used for module or unit testing, integration testing, and system testing.	Accept			F	Letter of Reuse PCA Doc Review
b. 2)	Copies of all test cases generated for each module and integration test, and sample ballot formats or other test cases used for system tests.	Accept			F	Letter of Reuse PCA Doc Review
b. 3)	Records of all tests performed by the procedures listed above, including error corrections and retests.	Accept			F	Letter of Reuse PCA Doc Review
	In addition to such audits performed by ITAs during the system qualification process, elements of this audit may also be performed by state election organizations during the system certification process, and individual jurisdictions during system acceptance testing.	Accept			F	Letter of Reuse PCA Doc Review
8.8	**Configuration Management Resources:** Often, configuration management activities are performed with the aid of automated tools. Assuring that such tools are available throughout the system life cycle, including if the vendor is acquired by or merged with another organization, is critical to effective configuration management. Vendors may choose the specific tools they use to perform the record keeping, audit, and reporting activities of the configuration management standards. The resources documentation standard provided below focus on assuring that procedures are in place to record information about the tools to help ensure that they, and the data they contain, can be transferred effectively and promptly to a third party should the need arise. Within this context, a vendor is required to develop and provide a complete description of the procedures and related practices for maintaining information about:					
a.	Specific tools used, current version, and operating environment specifications.	Accept			F	Letter of Reuse PCA Doc Review

Appendix B: PCA Source Code Review

The Unity 3.2.0.0 Rev. 1 source code is made up of two parts that required diverse handling based upon the rules of the EAC Certification Program.

The first part is source code that remained unchanged from the ESSUNITY3200 baseline and did not require any additional review or a new Trusted Build.

The second part is DS200 source code that was changed from the ESSUNITY3200 baseline. iBeta conducted a 100% review of source code changes that were submitted by ES&S in their Unity 3.2.1.0 and the Unity 3.2.0.0 Revision 1 test effort. The review was performed in Unity 3.2.1.0 and all results were reused for Unity 3.2.0.0 Revision 1. These were reviewed to the *VVSG 2005* and are identified in Section 5.1 PCA Source Code Review.

iBeta Unity 3.2.0.0 Revision 1 Source Code Review Results

The first table below contains the number of modules with discrepancies indentified in the DS200 firmware changes from the Unity 3.2.0.0 escrow. Some modules had more than one discrepancy. The table identifies the final code version reviewed and used in the Trusted Builds performed by iBeta. (See Appendix G: Trusted Build & Validation Tools Unity 3.2.0.0 Revision 1)

The second table lists the source code review requirements and the discrepancies. All discrepancies were comment related. These were reported to ES&S. ES&S fixed them and re-submitted them to iBeta. A subsequent review found all comments were appropriately updated. The discrepancies were closed

Product	Source Code	Language	Changes to Unity 3.2.0.0 -	Unity 3.2.0.0 Rev. 1 Release Version	Number of Modules with Discrepancies
DS200	DS200	C/C++	**1.3.10.0**	**1.4.3.0**	**11**

The PCA Source Code Review was conducted against these *VVSG 2005* requirements. Comment related requirements are highlight in green. A total of 11 modules contained discrepancies. One module contained discrepancies written against two requirements.

VVSG	VSS	Requirement	Definition	C & C++
	Vol. 1 Section 4.2.2-Integrity			
v.1: 5.2.2	v.1: 4.2.2	**Self-modifying code**	Self-modifying, dynamically loaded, or modification of compiled or interpreted code is prohibited	0
	Vol. 1 Section 4.2.3- Modularity			
v.1: 5.2.3.a	v.1: 4.2.3.a	**Specific function**	Module performs a specific function	0
v.1: 5.2.3.b	v.1: 4.2.3.b	**Module has unique name**	Uniquely and mnemonically named using names that differ by more than a single character	0
v.1: 5.2.3.b 5.2.7 (a, a.1-a.6)	v.1: 4.2.3.b 4.2.7 (a, a.1-a.6)	**Module has header**	Header describes purpose, other units needed, inputs, outputs, files read or written, globals, revision records (for modules greater than 10 lines) Header comments shall provide the following information: 1) The purpose of the unit and how it works; 2) Other units called and the calling sequence 3) A description of input parameters and outputs 4) File references by name and method of access 5) Global variables used 6) Date of creation and a revision record	**7**
v.1: 5.2.3.c	v.1: 4.2.3.c	**Required resources**	All required resources, such as data accessed by the module, should either be contained within the module or explicitly identified	0
v.1: 5.2.3.e	v.1: 4.2.3.e	**Single Entry Point**	Module has a single entry point	0
v.1: 5.2.3.e	v.1: 4.2.3.e	**Single Exit Point**	Module has a single exit point	0
v.1: 5.2.3.f	v.1: 4.2.3.f	**Control structures**	Support the modular concept and apply to any language feature where program control passes from one activity to the next.	0
	Vol. 1 Section 4.2.4-Control Constructs			
v.1: 5.2.4.a	v.1: 4.2.4.a	**Acceptable Constructs**	Acceptable constructs are Sequence, If-Then-Else, Do-While, Do-Until, Case, and the General loop (including the special case for loop);	0
v.1: 5.2.4.b	v.1: 4.2.4.b	**Vendor Defined Constructs with Justification**	If the programming language used does not provide these control constructs, the vendor shall provide them (that is, comparable control structure logic). The constructs shall be used consistently throughout the code. No other constructs shall be used to control program logic and execution	0
v.1: 5.2.4.c	v.1: 4.2.4.c	**Execution through Control Constructs**	While some programming languages do not create programs as linear processes, stepping from an initial condition, through changes, to a conclusion, the	0

VVSG	VSS	Requirement	Definition	C & C++
			program components nonetheless contain procedures (such as "methods" in object-oriented languages). Even in these programming languages, the procedures must execute through these control constructs.	
v.1: 5.2.4.d	v.1: 4.2.4.d	**Program re-direction**	Logic that evaluates received or stored data shall not re-direct program control	0
	Vol. 1 Section 4.2.5-Naming Conventions			
v.1: 5.2.5.a	v1: 4.2.5.a	**Name Readability**	Names shall be selected so that their parts of speech represent their use.	**4**
v.1: 5.2.5.b 5.2.5.c	v.1: 4.2.5.b 4.2.5.c	**Class, function and variable names**	Consistent names are used. Names shall be unique within an application and differ by more than a single character.	0
v.1: 5.2.5.d	v.1: 4.2.5.d	**Keyword**	Keywords shall not be used as names of objects, functions, procedures, or variables	0
	Vol. 1 Section 4.2.6-Coding Conventions			
v.2: 5.4.2.a	v.2: 5.4.2.a	**Uniform calling sequences**	Uses uniform calling sequences.	0
v.2: 5.4.2.a	v.2: 5.4.2.a	**Parameters type and range validation**	All parameters shall either be validated for type and range on entry into each unit or the unit comments shall explicitly identify the types and ranges	0
v.2: 5.4.2.b	v.2: 5.4.2.b	**Explicit return values**	The return is explicitly defined for functions and explicitly assigned	0
v.2: 5.4.2.c	v.2: 5.4.2.c	**Macros**	Does not use macros that contain returns or pass control beyond the next statement	0
v.2: 5.4.2.d	v.2: 5.4.2.d	**Unbound arrays**	Provides controls to prevent writing beyond the array, string, or buffer boundaries	0
v.2: 5.4.2.e	v.2: 5.4.2.e	**Pointers**	Provides controls that prevent pointers from being used to overwrite executable instructions or to access areas where vote counts or audit records are stored	0
v.2: 5.4.2.f	v.2: 5.4.2.f	**Case statements**	Default choice explicitly defined	0
v.2: 5.4.2.g	v.2: 5.4.2.g	**Vote counter overflowing**	Provides controls to prevent any vote counter from overflowing	0
v.2: 5.4.2.h	v.2: 5.4.2.h	**Indentation**	Code is indented consistently and clearly	0
v.2: 5.4.2.j	v.2: 5.4.2.j	**Code generator**	Generated code should be marked as such with comments defining the logic invoked	0
v.2: 5.4.2.k	v.2: 5.4.2.k	**Line length**	No line of code exceeding 80 columns in width without justification	0
v.2: 5.4.2.l	v.2: 5.4.2.l	**Executable statement**	One executable statement for each line of source code	0
v.2: 5.4.2.m	v.2: 5.4.2.m	**Embedded executable statement**	The single embedded statement may be considered a part of the conditional expression. Any additional executable statements should be split out to the other lines.	0
v.2: 5.4.2.n	v.2: 5.4.2.n	**Mixed-mode operations**	Avoids mixed-mode operations. Comment if mixed-mode usage is necessary.	0
v.2: 5.4.2.o	v.2: 5.4.2.o	**Exit() message**	Upon exit() at any point, presents a message to the user indicating the reason for the exit ().	0
v.2: 5.4.2.p	v.2: 5.4.2.p	**Format of messages**	Separate and consistent formats to distinguish between normal status and error or exception messages	0
v.2: 5.4.2.q	v.2: 5.4.2.q	**References variables**	References variables by fewer than five levels of indirection (i.e. a.b.c.d or a[b].c->d)	0
v.2: 5.4.2.r	v.2: 5.4.2.r	**Levels of indented scope**	Functions with fewer than six levels of indented scope	0
v.2: 5.4.2.s	v.2: 5.4.2.s	**Variable initialization**	Initializes every variable upon declaration where permitted.	0
Deleted in VVSG	v.2: 5.4.2.t	**Explicit Comparisons**	Explicit comparisons in all if() and while() conditions.	0
v.2: 5.4.2.u	v.2: 5.4.2.u	**Constant Definitions**	All constants other than "0" and "1" defined or enumerated	0
v.2: 5.4.2.v	v.2: 5.4.2.v	**Ternary Operator**	Only contains the minimum implementation of the "a = b ? c : d" syntax. Expansions such as "j=a?(b?c:d):e;" are prohibited.	0
v.2: 5.4.2.w	v.2: 5.4.2.w	**Assert() statement**	All assert() statements coded such that they are absent from a production compilation	0
	Vol. 1 Section 4.2.7 -Comments			
v.1: 5.2.7.b	v.1: 4.2.7.b	**Variables**	All variables shall have comments at the point of declaration	0
v.1: 5.2.7.c	v.1: 4.2.7.c	**In-Line Comments**	In-line comments shall be provided to facilitate interpretation of functional operations, tests, and branching	**1**
v.1: 5.2.7.d	v.1: 4.2.7.d	**Assembly code**	Assembly code shall contain descriptive and informative comments	0
v.1: 5.2.7.e	v.1: 4.2.7.e	**Comments in uniform format**	All comments formatted in a uniform manner	0

VVSG	VSS	Requirement	Definition	C & C++
	Vol. 1 Section 6.4.2 -Protection Against Malicious Software			
v1: 7.4.2	v.1: 6.4.2	**Malicious Software**	Susceptibility to file or macro viruses, worms, Trojan horses, logic bombs, or hardcoded passwords	0

Appendix G: Trusted Build & Validation Tools Unity 3.2.0.0 Revision 1

The ES&S DS200 v.1.4.3.0 changes submitted in Unity 3.2.0.0 Revision 1 have also been submitted to the Unity 3.2.1.0 certification test effort. A single build was conducted for both test efforts and stored in the Unity 3.2.1.0 project. At completion of the test effort duplicate copies will be maintained in the Unity 3.2.0.0 Revision 1 archive.

Listed below are the Source Code Applications reviewed in the Unity 3.2.1.0 test effort by iBeta however; the items listed are will be the Final Trusted Builds and Witness of the ES&S Unity 3.2.0.0 Revision 1 voting system firmware. (NIST Handbook 150-22 4.2.3, 4.13.2, 4.13.4, 5.10.4 VSS vol. 1: 9.6.2.4)

IBeta uses a COTS hash program (Maresware) to obtain File Size, MD5 and SHA1 hashes during all witnessed and trusted builds. Both algorithms have been validated using the test data from the NIST NSRL website (http://www.nsrl.nist.gov/testdata/). This program is widely used in forensic analysis of systems and also used by some states to verify their voting software. The MD5 and SHA1 hashes are taken to be consistent with the currently distributed NSRL data files which contain the hash resulting from each of those two algorithms.

Witness of the Trusted Build DS200 v.1.4.3.0

Document Prior to the Build Witness:	
Vendor Name	ES&S
Vendor Consultant(s) (5.6)	Dave Herrera
Witness Name (5.6)	Sjakileti
Witness Title	Trusted Builder
Vendor Build Document(s) used and version(s)	Ds200Firmware_BECI_v1.4.3.0_2010.01.23.pdf
Equipment Used	Dell Precision 670
iBeta COTS used to clean the build environment disk (name and version) (5.6.1.1)	Restored from the 3.2.0.0 DS200 TOS PostBuild (DS200TOS_PostBuild_05302009.GHO) as a Build environment for DS200 Firmware
iBeta COTS used to generate HASH file signatures (name and version)	Mares Hash Ver. 07.08.10.07.12
Construct the build environment (5.6.1.2)	
Verify (by signature) that the build environment is isolated and controlled by iBeta	Sjakileti
Witness attests to verifying that the source code being built is the source code provided by iBeta	Sjakileti
Vendor CM Tool and version	Concurrent Versions System (CVS) 1.11.22
Build tool(s) and version(s)	Linux From Scratch 6.25
Build Environment Operating System	Linux operating system 6.25
3rd Party Libraries and Version	Please see in DS200TOS trustedBuild Doc 3rd party Libraries and versions
3rd Party Source Code (COTS) and Version	N/A
3rd Party DLLs, Drivers, etc. and Version(s)	Please see in DS200TOS 3rd party DLLs, Drivers, etc and Versions
Additional file(s) loaded and version(s)	BuildScripts(BuildFirmware1.sh, BuildFirmware2.sh, BuildFirmware3.sh, VersionNumbers.txt), PMB.hex (1.2.01, built 5/28/2009) coming from 3.2.0.0_DS200AncillaryDevices (trusted Build fw.iic coming from 3.2.1.0_DS200AncillaryDevices trusted Build)
Record the disk image software version being used	Norton GHOST V:11.0
Record the filename of the build environment file signature (5.6.1.3) –	Restored from previous build

Record the filename of the build environment disk image –	DS200TOS_PostBuild_05302009.GHO
Verify (by signature) the build environment file signature (5.6.1.3)	Sjakileti
Loading Source Code (5.6.2)	
Record the file signature of the source code (5.6.2.1)	see table of source code, above
Verify (by signature) that each file signature of the source code loaded matches as documented above (5.6.2.1)	Sjakileti
Method of Build Witness	Trusted Build
Record the combined source code and pre-build environment file signature (5.6.2.2)	DS200FW_PreBuild_02122010.hashl
Record the combined source code and pre-build environment disk image (5.6.2.3)	DS200FW_PreBuild_02122010.GHO
Record the Final Build Version – Unique Identifier	DS200 1.4.3.0
Certification Application Number (if applicable)	ESS1002
Document during the Build Witness:	
Date / Time Build Initiated	2/12/2010 8.00am
Compiler and Version	GCC-4.0.3 (GNU Compiler Collection). This compiler is part of the LFS (Linux From Scratch) 6.2-5 Live CD
Application Name	DS200
Application Version Order	Ds200 1.4.3.0
Obtain Names and Signatures of all persons present during build (record below)	Sjakileti & Dave Herrera
Issue(s) and Resolution(s)	No Issues
Document at Completion of the Build Witness:	
Record the disk image of the final build (5.7.3)	DS200FW_PostBuild_02122010.GHO
Record file signature of the final build (5.6.3.1)	DS200FW_PostBuild_02122010.hashl
Record the type of unalterable storage media being used for installation disk(s) (i.e., CD) – (5.6.3.2)	CF card on DS200 machine and NAS2 (located in the Unity 3.2.1.0 project folder)
Record each piece of media that is part of the installation disk (each must have a unique identifier) (5.6.3.2, 5.7.5)	Ds200 1.4.3.0 Trusted Build upgrade 02122010
Record the file signature of the installation disk(s). (5.6.3.3, 5.7.5) (include in below archive)	DS200FW_TrustedBuild_Installs_02122010.hash.txt
Record the type of unalterable storage media being used for pre-build and post-build archive disk (i.e., CD) –	NAS2 (located in the Unity 3.2.1.0 project folder)
Record each piece of media that is part of the pre-build archive disk (each must have a unique identifier) (5.6.2.4, 5.7.2, 5.7.3)	Same as above
Explanation of any significant differences observed	No Issues

Witness of the Trusted Build DS200 Ancillary Devices

Document Prior to the Build Witness:	
Vendor Name	ES&S
Vendor Consultant(s) (5.6)	Dave Herrera
Witness Name (5.6)	Kevin Wilson, Alastair Mayer
Witness Title	Trusted Builder
Vendor Build Document(s) used and version(s)	WinXPwithSP3-DellOptiplexGX520_INST_2009.03.31.pdf IAREmbeddedWorkbench3.40_INST_2009.04.20.pdf

	KeiluVision3DevelopmentTools4.2007_INST_2009.04.20.pdf CypressEZ-USBReferenceDesignKit2.31_INST_2009.04.20.pdf DS200AncillaryDevices_BECI_3.2.1.0_2009.12.15.pdf
Equipment Used	DellOptipllexGX520
iBeta COTS used to clean the build environment disk (name and version) (5.6.1.1)	Active KillDisk for DOS V:4.1 Build 2380
iBeta COTS used to generate HASH file signatures (name and version)	Mares Hash Ver. 07.08.10.07.12
Construct the build environment (5.6.1.2)	
Verify (by signature) that the build environment is isolated and controlled by iBeta	Kevin Wilson
Witness attests to verifying that the source code being built is the source code provided by iBeta	Kevin Wilson
Vendor CM Tool and version	Concurrent Versions System (CVS) 1.11.22 Copyright (C) 2006 Free Software Foundation, Inc.
Build Environment Operating System	Windows XP Professional Version 2002 Service Pack 3
Build tool(s) and version(s)	Keil µVision3 Development Tools Cypress CY4611 EZ-USB FX2 Reference Design Kit IAR Embedded Workbench EW430
3rd Party Libraries and Version	As below
3rd Party Source Code (COTS) and Version	As below
3rd Party DLLs, Drivers, etc. and Version(s)	As below
Additional file(s) loaded and version(s)	Build scripts(unzip.exe, TB-3_CreateExecutables.bat, TB-2_LoadSourceCode.bat, TB-0_CheckInputMedium.bat, ESSSourceFileList.txt, ESSScriptsFileList.txt, BuildScripts.ini, TB-2_LSC-2_ScannerBoard.bat, TB-2_LSC-1_PowerManagementBoard.bat, TB-2_LSC-0.2_MakeDirectories.bat, TB-2_LSC-0.1_SetEnvironmentVariables.bat, TB-3_CE-0.01_SetEnvironmentVariables.bat, TB-3_CE-1.01_PowerManagementMsp430.bat, TB-3_CE-1.02_ScannerC8051.bat, TB-0_CIM-0_SetEnvironmentVariables.bat)
Record the disk image software version being used	Notron GHOST V:11.0
Record the filename of the build environment file signature (5.6.1.3) –	DS200Ancillary_PostCots_05282009.hash.txt
Record the filename of the build environment disk image –	DS200Ancillary_PostCots_05282009.GHO
Verify (by signature) the build environment file signature (5.6.1.3)	Kevin Wilson, Alastair Mayer
Loading Source Code (5.6.2)	
Record the file signature of the source code (5.6.2.1)	see table of source code, above
Verify (by signature) that each file signature of the source code loaded matches as documented above (5.6.2.1)	Kevin Wilson, Alastair Mayer
Method of Build Witness	Trusted Build
Record the combined source code and pre-build environment file signature (5.6.2.2)	DS200Ancillary_PreBuild_12292009.hash.txt
Record the combined source code and pre-build environment disk image (5.6.2.3)	DS200Ancillary_PreBuild_12292009.GHO
Record the Final Build Version –	Scanner C8051 2.20.0.0

Unique Identifier	
Certification Application Number (if applicable)	ESS1002
Document during the Build Witness:	
Date / Time Build Initiated	12/29/2009 8:45 am MST (but PC says 7:45)
Compiler and Version	See Build tools and versions
Application Name	DS200ancillary Devices (Scanner)
Application Version Order	2.20.0.0
Obtain Names and Signatures of all persons present during build (record below)	Kevin Wilson, Alastair Mayer Dave Herrera
Issue(s) and Resolution(s)	No Issues
Document at Completion of the Build Witness:	
Record the disk image of the final build (5.7.3)	DS200Ancillary_PostBuild_12292009.hash.txt
Record file signature of the final build (5.6.3.1)	DS200Ancillary_PostBuild_12292009.GHO
Record the type of unalterable storage media being used for installation disk(s) (i.e., CD) – (5.6.3.2)	NAS2 (located in the Unity 3.2.1.0 project folder)
Record each piece of media that is part of the installation disk (each must have a unique identifier) (5.6.3.2, 5.7.5)	DS200Ancillary install files are (fw.iic) input to DS200 firmware build on NAS2 ESS Unity 3.2.1.0\Unity3.2.1.0_TrustedBuild\Unity 3.2.1.0_DS200_TrustedBuild_2009Dec29\ds200_stage_Ancillary_12292009
Record the file signature of the installation disk(s). (5.6.3.3, 5.7.5) (include in below archive)	DS200Ancillary_Archive_12292009.hash.txt
Record the type of unalterable storage media being used for pre-build and post-build archive disk (i.e., CD) –	NAS2 (located in the Unity 3.2.1.0 project folder)
Record each piece of media that is part of the pre-build archive disk (each must have a unique identifier) (5.6.2.4, 5.7.2, 5.7.3)	Same as above
Explanation of any significant differences observed	No differences

System Identification Tools

As identified in Section 5.8 and 5.9 of the *US Election Assistance Commission Test and Certification Program Manual* delivery of the System Identification Tools to the EAC is the responsibility of ES&S. Review of the System Identification Tools is the responsibility of the EAC. No changes to the ESSUNITY3200 system identification tool were submitted to iBeta.