WYLE TEST REPORT NO. T56285-01

APPENDIX A.8

TECHNICAL DATA PACKAGE REVIEW REPORT

78 pages including cover page

The TDP documents were reviewed for accuracy, completeness, and compliance to the VVSG. The TDP documentation served as the basis for design and development of all functional tests. Functional testing also identified text in the TDP that conflicted with the actual operation of the system. These discrepancies were reported to Unisyn and tracked as test exceptions until verified that the applicable documents had been corrected.

The review results were recorded in a worksheet that provided the pass/fail compliance to each applicable VVSG requirement. Unisyn corrected each nonconformance observation and resubmitted the associated documents for review. This process continued until the TDP complied with all TDP Standards.

A summary of the TDP issues encountered is provided below. All TDP issues listed were resolved prior to review conclusion.

System Overview (04-00446):

- Initially some information describing the OVS was inconsistent with information in the Software Design and Specification document.

- Documents were referenced for information which were not included in the TDP package.

System Functionality Description (04-00444):

- Information in some sections of the document was incomplete, as indicated by internal placeholder comments.

- Information included was inconsistent with other TDP documents e.g. Security Specification, individual user guides). In some instances, was repeated from other documents, but not always updated when revised in the other documents.

System Hardware Specification (04-00458):

- The hardware described was not consistent with the hardware configuration received for testing.

- Some COTS information was not submitted (e.g. wiring diagrams).

Software and Design Specification (04-00464):

- Not all VVSG requirements were fully described (for example, programming specification details).

- Document contained missing information in some sections.

Security Specification (04-00447):

- Some user role information needed clarification.

System Test and Verification Plan (04-00453):

- Testing document identification information was inconsistent with that in the Quality Assurance Plan.

User Guides (04-00427, 04-00428, 04-00429, 04-00430, 04-00431, 04-00432, 04-00433, 04-00460, 04-00462, 04-00463, 04-00495:

- Some of the individual user guides included information which conflicted with the actual information encountered when verified during the testing process; e.g. some screen shot information in the users guides differed from actual screens on the test equipment).

System Maintenance Procedures (04-0000459):

- Component descriptions were not as complete as the Hardware Specification.

- Some maintenance tasks were listed but some tasks were not fully described.

Personnel Training and Deployment (04-00445):

- Training requirements had not been addressed.

Configuration Management Plan (04-00448):

- ILTS ISO documents were referenced for much information concerning the Unisyn Configuration Management process, but these documents were not included in the TDP package.

- Not all VVSG requirements were initially addressed (e.g. baseline and promotion of all components).

Quality Assurance Plan (04-00454):

- The Quality Assurance Plan referenced ILTS ISO documentation for much of the QA process. These documents were not included in the TDP package.

- Build deployments and incident tracking information was not clearly defined.

Test Cases:

- Incomplete test case information was initially submitted.

The TDP Review Cross-Reference Matrix is provided in table on the following pages.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VII, Sec. 2	**Description of the Technical Data Package**		
VII, 2.1	**Scope**		
	This subsection contains a description of the vendor documentation relating to the voting system that shall be submitted with the system as a precondition of national certification testing. Any information relevant to the system evaluation shall be submitted to include source code, object code, and sample output report formats.	*also Vol. I, 2.1.7.2 Voting Variations;* *Vol. II, 2.8.4 Operational Features* *EAC VSTL Program Manual Vol. 1.0 Sect. 4.3.1.6*	Sys Overview Sec. 1.1.2 Voting Variations Supported TDP package – see Tech Data Pkg, Doc. List & Ver. Control Doc
	Both formal documentation and notes of the vendor's development process shall be submitted for qualification tests. If the vendor's developmental test data are incomplete, the accredited test lab shall design and conduct the appropriate tests to cover all elements of the system and to ensure conformance with all system requirements.		Software Design & Spec
VII, 2.1.1	**Content and Format**		
	The vendor shall provide a list of all documents submitted controlling the design, construction, operation, and maintenance of the system. Documents shall be listed in order of precedence.		Sys. Overview Doc. Sec. 1.5 Related TDP Documents Tech Data Pkg Doc list & Ver Control
VII, 2.1.1.1	**Description of the Technical Data Package, Required Content for Initial Certification**	*Vol. I, 8.7 Quality Assurance Requirements, Documentation;* *Vol. II, 2.12.4 Quality Assurance Program, Documentation*	
	At a minimum, the TDP shall contain the following documentation:	*Vol. I, 3.1.1 Usability Testing;* *Vol. I, 3.2.2.1 Partial Vision;* *Vol. I, 3.2.2.2 Blindess;* *Vol. I, 3.2.3 Dexterity*	
a.	System configuration overview		System Overview document rec'd
b.	System functionality description		System Functionality Description document rec'd
c.	System hardware specifications		System Hardware Specification document rec'd
d.	Software design and specifications		System Coding Standards document rec'd; Software and Design Specification document rec'd
e.	System test and verification specifications	*see Vol. I 3.1.1 Usability Testing: per EAC RFI 2007-03 dated 9/5/07 - 2005 VVSG Vol. I Section 3.1.1: summative usability test report must be submitted.*	System Test and Verification Plan document rec'd; Test Cases received; Final Quality Assurance Report document rec'd
f.	System security specifications		System Security Specification document rec'd

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
g.	User/system operations procedures		All applicable user guides rec'd
h.	System maintenance procedures		System Maintenance Procedures document rec'd
i.	Personnel deployment and training requirements		Personnel Training and Deployment Requirements document
j.	Configuration management plan		Configuration Management Plan document rec'd
k.	Quality assurance program		Quality Assurance Plan document rec'd
l.	System change notes		n/a: initial system submission
VII, 2.1.1.2	**Required Content for System Changes and Recertification**		
	For systems seeking re-certification, vendors shall submit System Change Notes as described in Subsection 2.13, as well as current versions of all documents that have been updated to reflect system changes.	*see Vol. II, 2.13 System Change Notes;* *Vol. I, Sec. 8.7 Quality Assurance Requirements, Documentation;* *Vol. II, 2.12.4 Quality Assurance Program, Documentation*	New system certification; requirement is n/a
VII, 2.1.1.3	**Format**		
	The TDP shall include a detailed table of contents for the required documents, an abstract of each document, and a listing of each of the informational sections and appendices presented.		Included in each TDP document
	A cross-index shall be provided indicating the portions of the documents that are responsive to documentation requirements for any item presented.		Included in each document as applicable.
VII, 2.1.3	**Protection of Proprietary Information**		
	The vendor shall identify all documents, or portions of documents, containing proprietary information not approved for public release.		Identified in Technical Data Package Document List and Version Control document
VII, 2.2	**System Overview**		
	In the system overview, the vendor shall provide information that enables the accredited test lab to identify the functional and physical components of the system, how the components are structured, and the interfaces between them.		Sep Overview & Entire Doc
VII, 2.2.1	**System Description**		
	The system description shall include written descriptions, drawings and diagrams that present:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	A description of the functional components (or subsystems) as defined by the vendor (e.g., environment, election management and control, vote recording, vote conversion, reporting, and their logical relationships).		Sect 1 Introduction entire section
b.	A description of the operational environment of the system that provides an overview of the hardware, software, and communications structure.		Sect 1 Introduction entire section
c.	A concept of operations that explains each system function, and how the function is achieved in the design.		Sect 1 Introduction entire section
d.	Descriptions of the functional and physical interfaces between subsystems and components.		Sect 1 Introduction entire section
e.	Identification of all COTS hardware and software products and communications services used in the development and/or operation of the voting system, identifying the name, vendor, and version used for each such component, including:		
	1) Operating systems	*also Vol. I, 7.5.2 Telecomm., Prot. Against External Threats*	System Overview Sec. 1.2 System Components
	2) Database software	*see Vol. II, 2.5.8 Sys. Database*	System Overview Sec. 1.2 System Components
	3) Communications routers	*see Vol. 1, 7.5.2 Prot. Against External Threats*	System Overview Sec. 1.2 System Components
	4) Modem drivers	*see Vol. 1, 7.5.2 Prot. Against External Threats*	System Overview Sec. 1.2 System Components
	5) Dial-up networking software	*see Vol. 1, 7.5.2 Prot. Against External Threats*	System Overview Sec. 1.2 System Components
f.	Interfaces among internal components, and interfaces with external systems. For components that interface with other components for which multiple products may be used, the TDP shall provide an identification of:	*Vol. II, 2.5.9 Interfaces*	
	1) File specifications, data objects, or other means used for information exchange.		Sect 1.2 Sys components entire section
	2) The public standard used for such file specifications, data objects, or other means.		Sect 1.2 Sys components entire section

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
g.	Benchmark directory listings for all software (including firmware elements) and associated documentation included in the vendor's release in the order in which each piece of software would normally be installed upon system setup and installation.		App A Benchmark Directory Listings
VII, 2.2.2	**System Performance**		
	The vendor shall provide system performance information including:		
a.	The performance characteristics of each operating mode and function in terms of expected and maximum speed, throughput capacity, maximum volume (maximum number of voting positions and maximum number of ballot styles supported), and processing frequency.	*see Vol. I, 2.2.1.1c Ballot Prep., Gen. Capabilities.;* *see Vol. I, 4.1.5.1a Ballot Handling*	System Overview Sec. 1.3 System Performance
b.	Quality attributes such as reliability, maintainability, availability, usability, and portability.	*see Vol. I, 4.3.5 Availability; Vol. I, 7.9.3 VVPAT Requirements, Electronic and Paper Record Structure; VoI. I, 7.9.4 Equipment Security and Reliability*	System Overview Sec. 1.3.1 Quality Attributes; Sec. 1.4 System Quality and Maintenance
c.	Provisions for safety, security, privacy, and continuity of operation.		System Overview Sec. 1.3.2 Safety, Security, Privacy, and Continuity of Operation
d.	Design constraints, applicable standards, and compatibility requirements.		System Overview Sec. 1.3.3 Design Constraints…
VII, 2.3	**System Functionality Description**		
	The vendor shall declare the scope of the system's functional capabilities, thereby establishing the performance, design, test, manufacture, and acceptance context for the system.		Fnct Desc entire doc especially Sect 1 intro. Cross references other docs for detailed info – verified information per document
	The vendor shall provide a listing of the system's functional processing capabilities, encompassing capabilities required by the Guidelines and any additional capabilities provided by the system. This listing shall provide a simple description of each capability. Detailed specifications shall be provided in other documentation required for the TDP.	*per VVSG V2, 3.2.3, additional capabilities are those added to respond to the requirements of an individual State(s).*	Sect 2 overall system capabilities 3 pre-voting 4 voting capabilities 5 post-voting

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
2a.	The vendor shall organize the presentation of required capabilities in a manner that corresponds to the structure and sequence of functional capabilities indicated in Volume I, Section 2. The contents of Volume I, Section 2 may be used as the basis for a checklist to indicate the specific functions provided and those not provided by the system. [see below for functional capabilities as listed in Vol. I, Sec. 2.1-2.5]		Functionality Description document follows VVSG Vol. I, Sec. 2.3 sequence in discussing the voting system
	[Vol. I, 2.1 Overall System Capabilities]: These functional capabilities apply throughout the election process. They include:		
	2.1.1 Security		Func. Desc. Sec. 2.1 Security
	2.1.2 Accuracy		Funct. Desc. Sec. 2.2 Accuracy 3.4.4 Accuracy testing
	2.1.3 Error Recovery		Funct. Desc. Sec. 2.3 – 2.3.1.3 Error Recovery and Error Messages; Sec. 2.3.2.3 OVO/OVCS Recovery 2.1.3.7 Voting Startup rules, 3.1.5 Error Handling & messages, 3.2.1.4 Error Messages & recovery
	2.1.4 Integrity		Funct. Desc. Sec. 2.4-2.4.8 Integrity, 2.1.1.2 Hardware Access Controls
	2.1.5 System Auditability		Functionality Description Sec. 2.5 System Audit.
	2.1.6 Election Management System		3.2.6 Elec. Management Sect. 2.6 Election Management System OCS
	2.1.7 Vote Tabulation		Functionality Description: Sec. 2.5 Post-Voting Capabilities
	2.1.8 Ballot Counters		Functionality Description Sec. 2.7 Ballot Counters
	2.1.9 Telecommunications		Functionality Description Sec. 2.8 Telecommunications
	2.1.10 Data Retention	*see Vol. I, 2.1.10 Data Retention;* *see Vol. I, 4.1.3.2 Memory Stability;* *see Vol. I, 4.1.6.1 b. Paper-Based System Processing Requirements;* *see Vol. I, 4.1.6.2 c. DRE System Processing Requirements;* *see Vol. I, 4.1.7.1 Removable Storage Media;* *see Vol. I, 5.3 a. Data and Document Retention*	Functionality Description Sec. 2.9 Data Retention

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	[Vo. I, 2.2 Pre-voting Capabilities]: These functional capabilities are used to prepare the voting system for voting. They include:		
	Ballot Preparation		Funct. Desc. Sec. 3.1 Ballot preparation; Sec. 3.1.1.1 Scope of BLM Functions thru 3.1.2.2 Election Properties
	Preparation of election-specific software (including firmware)		Funct. Desc. V1.1 Sec. 3.1.1.5 Startup and Initialization 1.5.3 Software Server 1.5.4 Election Server 1.5.5.1 OVO Configuration
	Production of ballots		Functionality Description Sec. 3.1.3 Ballot Production
	Installation of ballots and ballot counting software (including firmware)		3.3 Ballot Installation & control
	System and equipment tests		Functionality Description Sec. 3.4 Readiness Testing
	[Vol. I, 2.3 Voting Capabilities]: These capabilities include:		
	All operations conducted at the polling place by voters and officials including the generation of status messages.		Functionality Description Sec. 4 Voting Capabilities
	Vol. I, 2.4 Post-voting Capabilities]: These capabilities apply after all votes have been cast. They include:		
	Closing the polling place		Funct. Desc. Sec. 5.6.1 One percent Recount; Sec. 5.7 RCV Tally, Sec. 5.1 Closing the Polls
	Obtaining reports by voting machine, polling place, and precinct		5.1.11 Vote Tabulation Reporting, 5.8 Election Reports
	Obtaining consolidated reports		5.1.11 Vote Tabulation Reporting, 5.8 Election Reports
	Obtaining reports of audit trails		1.5.3.2 SS Input/Output, 1.5.4 Election Server, 1.5.7.2 OVCS Input/Output, 1.5.8.2 TC Input/Output, 1.5.9.2 Tabulator Input/Output, 2.1.1.8 Database, 2.1.3.7 Voting System Startup Rules, 2.2.2.3 OVO Read/Write Checks & Logging, 2.3.1 Error Messages
	[Vol. I, 2.5 Maintenance, Transportation and Storage Capabilities]:		
	These capabilities are necessary to maintain, transport, and store voting system equipment.		Functionality Description: Sec. 6 Maintenance, Transportation, and Storage

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
b.	Additional capabilities shall be clearly indicated. They may be presented using the same structure as that used for required capabilities (i.e., overall system capabilities, pre-voting functions, voting functions, post-voting functions), or may be presented in another format of the vendor's choosing.	*per VVSG V2, 3.2.3, additional capabilities are those added to respond to the requirements of an individual State(s).*	Functionality Description: Sec. 6 Maintenance, Transportation, and Storage
c.	Required capabilities that may be bypassed or deactivated during installation or operation by the user shall be clearly indicated.		Funct. Desc. Sec. 3.1.1 General Capabilities
d.	Additional capabilities that function only when activated during installation or operation by the user shall be clearly indicated.		Functionality Description: Sec. 6 Maintenance, Transportation, and Storage
e.	Additional capabilities that normally are active but may be bypassed or deactivated during installation or operation by the user shall be clearly indicated.		Functionality Description: Sec. 6 Maintenance, Transportation, and Storage
VII, 2.4	**System Hardware Specification**		
	The vendor shall expand on the system overview by providing detailed specifications of the hardware components of the system, including specifications of hardware used to support the telecommunications capabilities of the system, if applicable.	*also VoI. I, 4.1.7.2 Printers; Vol. I, 4.2.1 Size; Vol. I, 4.2.2 Weight;*	Hardware Spec. Sec. 2 OVO Components 3 OVI Components 4 UPS 5 OVCS Also vendor Docs
VII, 2.4.1	**System Hardware Characteristics**		
	The vendor shall provide a detailed discussion of the characteristics of the system, indicating how the hardware meets individual requirements defined in Volume I, Section 4, including:	*Vol. I, 4.1-4.1.8.2 Performance Requirements; Vol. I, 3.4.2 Durability*	
a.	**Performance characteristics:** This discussion addresses basic system performance attributes and operational scenarios that describe the manner in which system functions are invoked, describe environmental capabilities, describe life expectancy, and describe any other essential aspects of system performance.		Hardware Spec. Sec. 2.3.1 Touch Screen Performance; Sec. 3.2.2 PC Performance and Accuracy Characteristics; Sec. 3.2.3.6 USB Ports
b.	**Physical characteristics:** This discussion addresses suitability for intended use, requirements for transportation and storage, health and safety criteria, security criteria, and vulnerability to adverse environmental factors.	*also Vol. I, 4.2-4.2.2 Hdw. Physical Characteristics Vol. I, 4.2.3 b.ii Transport and Storage of Precinct Systems*	Suitability: Hardware Spec. Sec. 2.1.1 OVO Case Specs; Sec. 3.1.1 OVI Case Specs Transport.: Hdw Spec. V1.1 Sec. 1.1.1 OVO; 2.1 Case; 2.2 PC; 3.6.3 Sip & Puff Storage: Sec. 1.2 Storage; Health/ Safety: safety: described throughout document; health: directions on usage throughout the document

A

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Security: limited access points throughout the document. Environ.: Hdw Spec. V1.1 Sec. 2.2.6 and 3.2.6 PC Environmental Conditions; 2.3.4 and 3.3.4 and 3.4.7 Touch Screen Environmental Conditions; 2.4.5 Printer Environmental Conditions; 2.5.7 and 3.5.7 TM Environmental Conditions; 2.6.6 Scanner Environmental Conditions; 3.6.1.2 Keypad Environmental Specifications; Sec. 2.2 PC, 2.2.6/3.2.6 PC Environmental Conditions, 2.4.2/3.4.2 Printer Physical Characteristics, 3.2 PC
c.	**Reliability:** This discussion addresses system and component reliability stated in terms of the system's operating functions, and identification of items that require special handling or operation to sustain system reliability.	*Vol. I, 4.3.3 Reliability*	described throughout document. 1.1.1 OVO, 1.1.2 OVI, 2.2.4/3.2.4 PC Reliability, 2.4.3/3.4.5 Printer Reliability, 2.5.5/3.5.5 TM Reliability
d.	**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 also addresses a range of scheduled and unscheduled events.	*Vol. I, 4.3.4-4.3.4.2 Maintainability*	Each component is described in terms of maintainability. 4.3 UPS Maintainability, 2.1.4/3.1.4 Case performance & maintainability, 2.2.5/3.2.5 PC maintainability, 2.3.3/3.3.3 Touch screen maintainability, 2.4.4/3.4.6 Printer maintainability, 2.5.6/3.5.6 TM maintainability, 2.6.5/5.2.5 Scanner maintainability
e.	**Environmental conditions:** This discussion addresses the ability of the system to withstand natural environments, and operational constraints in normal and test environments, including all requirements and restrictions regarding electrical service, telecommunications services, environmental protection, and any additional facilities or resources required to install and operate the system.	*Vol. I, 4.1.2-4.1.2.15 Environ. Requirements*	2.1.5/3.1.5 Operation & storage environment, 2.2.6/3.2.6 PC environmental conditions, 2.3.5/3.3.4 Touch screen environmental conditions, 2.4.5/3.4.7 Printer environmental conditions, 2.5.7/3.5.7 TM environmental conditions, 2.6.6/5.2.6 Scanner environmental conditions, 3.6.1 Keypad environmental conditions, 4.5 UPS environmental conditions
VII, 2.4.2	**Design and Construction**		
	The vendor shall provide sufficient data, or references to data, to identify unequivocally the details of the system configuration submitted for testing.	*also Vol. I, 4.3 Design, Construction, and Maintenance Characteristics*	described throughout the Hdw Spec.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall provide a list of materials and components used in the system and a description of their assembly into major system components and the system as a whole. Paragraphs and diagrams shall be provided that describe:		described throughout the Hdw Spec. 2 OVO components 3 OVI components 4 UPS components 5 OVCS components Vendor documents
a.	Materials, processes, and parts used in the system, their assembly, and the configuration control measures to ensure compliance with the system specification.		described throughout the Hdw Spec.
b.	The electromagnetic environment generated by the system.		described throughout the Hdw Spec.
c.	Operator and voter safety considerations, and any constraints on system operations or the use environment.		described throughout the Hdw Spec. (see 2.4.1b – Safety)
d.	Human factors considerations, including provisions for access by disabled voters.		1.1.2 OVI, Sect. 3 OVI components
VII, 2.5	**Software Design and Specification**		
	The vendor shall expand on the system overview by providing detailed specifications of the software components of the system, including software used to support the telecommunications capabilities of the system, if applicable.		Software Design and Spec. Sec. 6.1.4 OVO; Sec. 8
VII, 2.5.1	**Purpose and Scope**		
	The vendor shall describe the function or functions that are performed by the software programs that comprise the system, including software used to support the telecommunications capabilities of the system, if applicable.		Software Design and Spec. Sec. 1 Purpose and Scope
VII, 2.5.2	**Applicable Documents**		
	The vendor shall list all documents controlling the development of the software and its specifications. Documents shall be listed in order of precedence.		Section 2 applicable documents
VII, 2.5.3	**Software Overview**		
	The vendor shall provide an overview of the software that includes the following items:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	A description of the software system concept, including specific software design objectives, and the logic structure and algorithms used to accomplish these objectives.		Software Design and Spec. Sec. 3 Overview and throughout document
b.	The general design, operational considerations, and constraints influencing the design of the software.		Software Design and Spec. Sec. 3.2 General design, Considerations, & Influences
c.	Identification of all software items, indicating items that were:		Software Design and Spec. Sec. 3.3 Software Items
	1) Written in-house		Software Design and Spec. Sec. 3.3 Software Items
	2) Procured and not modified		Software Design and Spec. Sec. 3.3 Software Items
	3) Procured and modified, including descriptions of the modifications to the software and to the default configuration options.		Software Design and Spec. Sec. 3.3 Software Items
d.	Additional information for each item that includes:		
	1) Item identification		Sect. 3 Software Overview
	2) General description		Sect. 3 Software Overview
	3) Software requirements performed by the item		Sect. 3 Software Overview
	4) Identification of interfaces with other items that provide data to, or receive data from, the item		Sect. 3 Software Overview
	5) Concept of execution for the item		Sect. 3 Software Overview
	The vendor shall also include a certification that procured software items were obtained directly from the manufacturer or a licensed dealer or distributor.		Software Design and Spec: licenses provided in a separate .zip file as part of the Software Design and Specification documentation package.
VII, 2.5.4	Software Standards and Conventions		
	The vendor shall provide information that can be used by an accredited test lab or state certification board to support software analysis and test design. The information shall address standards and conventions developed internally by the vendor as well as published industry standards that have been applied by the vendor. The vendor shall provide information that addresses the following standards and conventions:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	Software System development methodology.		Software Design and Spec. Sec. 4.1 Development Methodology
b.	Software design standards, including internal vendor procedures.		Software Design and Spec. Sec. 4.2 Design Standards
c.	Software specification standards, including internal vendor procedures.		Software Design and Spec. Sec. 4.3 Software Specification Standards
d.	Software coding standards, including internal vendor procedures.		Software Design and Spec. Sec. 4.4 Coding Standards; and separate System Coding Standards document
e.	Testing and verification standards, including internal vendor procedures, that can assist in determining the program's correctness and ACCEPT/REJECT criteria.	*also Vol. I, 5.2.6 Software Design and Coding Standards, Coding Conventions*	Software Design and Spec. Sec. 4.5 Development, Testing, and Verification
f.	Quality assurance standards or other documents that can be used to examine and test the software. These documents include standards for program flow and control charts, program documentation, test planning, and test data acquisition and reporting.		Software Design and Spec. Sec. 4.5.6 Software Quality Assurance Standards
VII, 2.5.5	**Software Operating Environment**		
	This section shall describe or make reference to all operating environment factors that influence the software design.		
VII, 2.5.5.1	**Hardware Environment and Constraints**		
	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as:		
a.	The logic and arithmetic capability of the processor		Sect. 5.1 Hardware Environment & Constraints
b.	Memory read-write characteristics		Sect. 5.1 Hardware Environment & Constraints
c.	External memory device characteristics		Sect. 5.1 Hardware Environment & Constraints
d.	Peripheral device interface hardware		Sect. 5.1 Hardware Environment & Constraints
e.	Data input/output device protocols		Sect. 5.1 Hardware Environment & Constraints
f.	Operator controls, indicators, and displays		Sect. 5.1 Hardware Environment & Constraints
VII, 2.5.5.2	**Software Environment**		
	The vendor shall identify the compilers or assemblers used in the generation of executable code, and describe the operating system or system monitor.	*Vol. I, 9.7.1b Physical Configuration Audit*	Software Design and Spec. Sec. 5.2 Software environment

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VII, VII, 2.5.6	**Software Functional Specification**		
	The vendor shall provide a description of the operating modes of the system and of software capabilities to perform specific functions.		Sect. 6 Software Functional Specifications
VII, 2.5.6.1	**Configuration and Operating Modes**		
	The vendor shall describe all software configurations and operating modes of the system, such as ballot preparation, election programming, preparation for opening the polling place, recording votes and/or counting ballots, closing the polling place, and generating reports. For each software function or operating mode, the vendor shall provide:		
a.	A definition of the inputs to the function or mode (with characteristics, tolerances or acceptable ranges, as applicable).		Sect. 6.1 Configurations & Operating Modes, 10.4.1 Limits, 7.8 System Database
b.	An explanation of how the inputs are processed.		Sect. 6.1 Configurations & Operating Modes, 10.4.1 Limits, 7.8 System Database
c.	A definition of the outputs produced (again, with characteristics, tolerances, or acceptable ranges, as applicable).		Sect. 6.1 Configurations & Operating Modes, 10.4.1 Limits, 7.8 System Database
VII, 2.5.6.2	**Software Functions**		
	The vendor shall describe the software's capabilities or methods for detecting or handling:		
a.	Exception conditions		Software Design and Spec. Sec. 6.2 Exception Conditions for each component
b.	System failures		6.2 System failures for each component
c.	Data input/output errors		6.2 Data Input/Output errors for each component
d.	Error logging for audit record generation		6.2 Error logging for each component
e.	Production of statistical ballot data		6.2 Production of statistical ballot data for each component
f.	Data quality assessment		6.2 Data quality assessment for each component
g.	Security monitoring and control		6.2 Security monitoring and control for each component
VII, 2.5.7	**Programming Specifications**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall provide in this section an overview of the software design, its structure, and implementation algorithms and detailed specifications for individual software modules.		Software Design and Spec. Sec. Sect. 7 Programming Specifications
VII, 2.5.7.1	**Programming Specifications Overview**		
	This overview shall include such items as flowcharts, data flow diagrams, and other graphical techniques that facilitate understanding of the programming specifications. This section shall be prepared to facilitate understanding of the internal functioning of the individual software modules. Implementation of the functions shall be described in terms of the software architecture, algorithms, and data structures.		7-7.1 Application Diagrams
VII, 2.5.7.2	**Programming Specifications Details**		
	The programming specifications shall describe individual software modules and their component units, if applicable. For each module and unit, the vendor shall provide the following information:		
a.	Module and unit design decisions, if any, such as algorithms used		7.2 Programming Specification Details and Attachments A-P for each application
b.	Any constraints, limitations, or unusual features in the design of the software module or unit		7.2 Programming Specification Details and Attachments A-P for each application
c.	The programming language used and rationale for its use, if other than the specified module or unit language		7.2 Programming Specification Details and Attachments A-P for each application
d.	If the software module or unit consists of, or contains, procedural commands (such as menu selections in a database management system for defining forms and reports, online queries for database access and manipulation, input to a graphical user interface builder for automated code generation, commands to the operating system, or shell scripts), a list of the procedural commands and reference to user manuals or other documents that explain them		7.2 Programming Specification Details and Attachments A-P for each application

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
e.	If the software module or unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements as applicable. (Subsection 2.5.9 describes the requirements for documenting system interfaces.) Data local to the software module or unit shall be described separately from data input to, or output from, the software module or unit.		7.2 Programming Specification Details and Attachments A-P for each application
f.	If the software module or unit contains logic, the logic to be used by the software unit, including, as applicable:		
	1) Conditions in effect within the software module or unit when its execution is initiated		7.2 Programming Specification Details and Attachments A-P for each application
	2) Conditions under which control is passed to other software modules or units		7.2 Programming Specification Details and Attachments A-P for each application
	3) Response and response time to each input, including data conversion, renaming, and data transfer operations		7.2 Programming Specification Details and Attachments A-P for each application
	4) Sequence of operations and dynamically controlled sequencing during the software module's or unit's operation, including:		7.2 Programming Specification Details and Attachments A-P for each application
	4.i) The method for sequence control		7.2 Programming Specification Details and Attachments A-P for each application
	4.ii) The logic and input conditions of that method, such as timing variations, priority assignments		7.2 Programming Specification Details and Attachments A-P for each application
	4.iii) Data transfer in and out of memory		7.2 Programming Specification Details and Attachments A-P for each application
	4. iv) The sensing of discrete input signals, and timing relationships between interrupt operations within the software module or unit		7.2 Programming Specification Details and Attachments A-P for each application
	5) Exception and error handling		7.2 Programming Specification Details and Attachments A-P for each application
	If the software module is a database, provide the information described in Section 2.5.8 [System Database].		7.2 Programming Specification Details and Attachments A-P for each application
VII, 2.5.8	System Database		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall identify and provide a diagram and narrative description of the system's databases, and any external files used for data input or output. The information provided shall include for each database or external file:	*also Vol. II, 2.2.1e. System Description*	
a.	The number of levels of design and the names of those levels (such as conceptual, internal, logical, and physical).		Software Design and Spec. Sec. 8 System Database
b.	Design conventions and standards (which may be incorporated by reference) needed to understand the design.		Software Design and Spec. Sec. 8 System Database
c.	Identification and description of all database entities and how they are implemented physically (e.g., tables, files).		Software Design and Spec. Sec. 8 System Database
d.	Entity relationship diagrams and description of relationships		Software Design and Spec. Sec. 8 System Database/ 10.3 Entirety Relationship diagrams
e.	Details of table, record or file contents (as applicable) to include individual data elements and their specifications, including:		
	1) Names/identifiers		10.2 Database Structure Detail
	2) Data type (alphanumeric, integer, etc.)		10.2 Database Structure Detail
	3) Size and format (such as length and punctuation of a character string)		10.2 Database Structure Detail
	4) Units of measurement (such as meters, dollars, nanoseconds)		10.2 Database Structure Detail
	5) Range or enumeration of possible values (such as 0-99)		10.2 Database Structure Detail
	6) Accuracy (how correct) and precision (number of significant digits)		10.2 Database Structure Detail
	7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply		10.2 Database Structure Detail
	8) Security and privacy constraints		10.2 Database Structure Detail
	9) Sources (setting/sending entities) and recipients (using/receiving entities)		10.2 Database Structure Detail

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
f.	For external files, a description of the procedures for file maintenance, management of access privileges, and security.		10.2 Database Structure Detail
VII, 2.5.9	**Interfaces**		
	The vendor shall identify and provide a complete description of all internal and external interfaces, using a combination of text and diagrams.	*also Vol. II, 2.2.1.f. System Description*	Software Design and Spec. Sec. 9 Interfaces
VII, 2.5.9.1	**Interface Identification**		
	For each interface identified in the system overview, the vendor shall:		
a.	Provide a unique identifier assigned to the interface.		Software Design and Spec. Sec. 9 Interfaces
b.	Identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable.		Software Design and Spec. Sec. 9 Interfaces
c.	Identify which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them).		Software Design and Spec. Sec. 9 Interfaces
VII, 2.5.9.2	**Interface Description**		
	For each interface identified in the system overview, the vendor shall provide information that describes:		
a.	The type of interface (such as real-time data transfer, storage-and-retrieval of data) to be implemented		Software Design and Spec. Sec. 9 Interfaces
b.	Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:		
	1) Names/identifiers		Software Design and Spec. Sec. 9 Interfaces
	2) Data type (alphanumeric, integer, etc.)		Software Design and Spec. Sec. 9 Interfaces
	3) Size and format (such as length and punctuation of a character string)		Software Design and Spec. Sec. 9 Interfaces
	4) Units of measurement (such as meters, dollars, nanoseconds)		Software Design and Spec. Sec. 9 Interfaces
	5) Range or enumeration of possible values (such as 0-99)		Software Design and Spec. Sec. 9 Interfaces

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	6) Accuracy (how correct) and precision (number of significant digits)		Software Design and Spec. Sec. 9 Interfaces
	7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply		Software Design and Spec. Sec. 9 Interfaces
	8) Security and privacy constraints		Software Design and Spec. Sec. 9 Interfaces
	9) Sources (setting/sending entities) and recipients (using/receiving entities)		Software Design and Spec. Sec. 9 Interfaces
c.	Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:		
	1) Communication links/bands/frequencies/media and their characteristics		Software Design and Spec. Sec. 9 Interfaces
	2) Message formatting		Software Design and Spec. Sec. 9 Interfaces
	3) Flow control (such as sequence numbering and buffer allocation)		Software Design and Spec. Sec. 9 Interfaces
	4) Data transfer rate, whether periodic/aperiodic, and interval between transfers		Software Design and Spec. Sec. 9 Interfaces
	5) Routing, addressing, and naming conventions		Software Design and Spec. Sec. 9 Interfaces
	6) Transmission services, including priority and grade		Software Design and Spec. Sec. 9 Interfaces
	7) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing		Software Design and Spec. Sec. 9 Interfaces
d.	Characteristics of protocols the interfacing entity(ies) will use for the interface, such as:		
	1) Priority/layer of the protocol		Software Design and Spec. Sec. 9 Interfaces
	2) Packeting, including fragmentation and reassembly, routing, and addressing		Software Design and Spec. Sec. 9 Interfaces
	3) Legality checks, error control, and recovery procedures		Software Design and Spec. Sec. 9 Interfaces
	4) Synchronization, including connection establishment, maintenance, termination		Software Design and Spec. Sec. 9 Interfaces
	5) Status, identification, and any other reporting features		Software Design and Spec. Sec. 9 Interfaces

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
e.	Other characteristics, such as physical compatibility of the interfacing entity(ies) (such as dimensions, tolerances, loads, voltages and plug compatibility)		Software Design and Spec. Sec. 9 Interfaces
VII, 2.5.10	**Appendices**		
	The vendor may provide descriptive material and data supplementing the various sections of the body of the Software Specifications. The content and arrangement of appendices shall be at the discretion of the vendor. Topics recommended for amplification or treatment in appendix form include:		
a.	**Glossary:** A listing and brief definition of all software module names and variable names, with reference to their locations in the software structure. Abbreviations, acronyms, and terms should be included, if they are either uncommon in data processing and software development or are used in an unorthodox semantic.		OVS Acronyms document
b.	**References:** A list of references to all related vendor documents, data, standards, and technical sources used in software development and testing.		Software Design and Spec. Sec. 2 Applicable documents
c.	**Program Analysis:** The results of software configuration analysis algorithm analysis and selection, timing studies, and hardware interface studies that are reflected in the final software design and coding.		Sect. 10 Appendices App A-P
VII, 2.6	**System Security Specification**		
	Vendors shall submit a system security specification that addresses the security requirements of Volume I, Section 7. This specification shall describe the level of security provided by the system in terms of the specific security risks addressed by the system, the means by which each risk is addressed, the process used to test and verify the effective operation of security capabilities and, for systems that use public telecommunications networks as defined in Volume I, Section 6, the means used to keep the security capabilities of the system current to respond to the evolving threats against these systems.	*Vol. I, 2.1.1.g. Overall System Capabilities, Security; Vol. I, Sec. 7 Security Requirements; Vol. I, Sec. 6 Telecommunications Requirements*	System Security Specification

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Information provided by the vendor in this section of the TDP may be duplicative of information required by other sections. Vendors may cross-reference to information provided in other sections provided that the means used provides a clear mapping to the requirements of this section.		Security Spec. User Guides Hardware Spec.
	The Security Specification shall contain the sections identified below.		
VII, 2.6.1	**Access Control Policy**		
	The vendor shall specify the features and capabilities of the access control policy recommended to purchasing jurisdictions to provide effective voting system security. The access control policy shall address the general features and capabilities and individual access privileges indicated in Volume I, Subsection 7.2. [Access Control]	*also Vol. I, 7.2.1 Security Requirements, General Access Control Policy; also Vol. I, 7.2.1.1 Individual Access Privileges*	Security Spec. Sec. Sec. 1 Purpose and Scope; Sec. 2 Access Control Policy; Sec. 7 Other Elements of an Effective Security Program; Sec. 2.1.1 Software Access Controls; Sec. 2.1.2 Hardware Access Controls; Sec. 3.1.4 OVD Hardware Measures; Sec. 2.1.3 Communications; 2.1.4 Effective Password Management; Sec. 3.1.1.2 Operating System User Access; Sec. 3.1.6.1.1 [OCS] Password Policy; Sec. 3.1.6.1.2 Application Users; Sec. 2.1.5 Linux Protections; Sec. 2.1.5 Linux Protections; Sec. 2.1.7 Segregation of Duties (also answered in VVSG Vol. I, Sec. 7.2.1 General Access Control Policy below)
VII, 2.6.2	**Access Control Measures**		
	The vendor shall provide a detailed description of all system access control measures and mandatory procedures designed to permit access to system states in accordance with the access policy, and to prevent all other types of access to meet the specific requirements of Volume I, Subsection 7.2.	*also Vol. I, 7.2.1.2 Access Control Measures*	Security Spec. Sec. 3 Access Control Measures [entire section]; Sec. 3 Access Control Measures [entire section]; Dynamically generated passwords: Security Spec. Sec. 2.1.4 Effective Password Management, Sec. 3.1.7 Election Users; Sec. 3.1.8 Database Security, and other sections through document; Sec. 1.2 Elements of the System: RegKeyUtilities; 2.1.1 Software Access Controls: AES key for each location; Sec. 3.1.2.2 SHA 256 hash-generated key; Sec. 3.1.24 File Encryption [entire section] (also answered in VVSG Vol. I, Sec. 7.2.1.2 Access Control Measures below):
	The vendor also shall define and provide a detailed description of the methods used to preclude unauthorized access to the access control capabilities of the system itself.	*also Vol. I, 7.2.1.2 Access Control Measures*	Security Spec. Sec. 3 Access Control Measures [entire section]; Sec. 3 Access Control Measures [entire section]; Dynamically generated passwords: Security

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Spec. Sec. 2.1.4 Effective Password Management, Sec. 3.1.7 Election Users; Sec. 3.1.8 Database Security, and other sections through document; Sec. 1.2 Elements of the System: RegKeyUtilities; 2.1.1 Software Access Controls: AES key for each location; Sec. 3.1.2.2 SHA 256 hash-generated key; Sec. 3.1.24 File Encryption [entire section] (also answered in VVSG Vol. I, Sec. 7.2.1.2 Access Control Measures below):
VII, 2.6.3	**Equipment and Data Security**		
	The vendor shall provide a detailed description of system capabilities and mandatory procedures for purchasing jurisdictions to prevent disruption of the voting process and corruption of voting data to meet the specific requirements of Volume I, Subsection 7.3. [Physical Security Measures] This information shall address measures for polling place security and central count location security.	*Vol. I, 7.3.1 Physical Security Requirements, Polling Place Security;* *also Vol. I, 7.3- 7.3.2 Physical Security Measures*	Security Spec. Sec. Sec. 4.2 Polling Place Security [entire section, particularly Sec. 4.2.5 Emergency Procedures]; Sec. 7.4 Physical Facilities, Polling Place Security; Sec. 6 Telecommunications and Data Transmission Security state no public networks are used; Sec. 4.3 Central Count Location Security [entire section]; Sec. 4.2.2 Voting Security Procedures; Sec. 7.4 Physical Facilities; Sec. 4.2.4 voting Day Delivery Procedures (also answered in VVSG Vol. I, Sec. 7.3 Physical Security Measures below)
VII, 2.6.4	**Software Installation**		
	The vendor shall provide a detailed description of the system capabilities and mandatory procedures for purchasing jurisdictions to ensure secure software (including firmware) installation to meet the specific requirements of Volume I, Subsection 7.4. [Software Security] This information shall address software installation for all system components.	*also Vol. I, 7.4-7.4.6 Software Security*	
VII, 2.6.5	**Telecommunications and Data Transmission Security**		
	The vendor shall provide a detailed description of the system capabilities and mandatory procedures for purchasing jurisdictions to ensure secure data transmission to meet the specific requirements of Volume I, Subsection 7.5: [Telecommunications and Data Transmission].	*Vol. I, 7.5.2 b. Security Requirements, Telecommunications and Data Transmission, Protection Against External Threats*	Security Spec. Sec. 6 Telecommunications and Data Transmission Security state no public communications network is used. Only 2 locations within the OCS use data transfer network, all on a private LAN; all communications are encrypted.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	For all systems, this information shall address access control, and prevention of data interception.	*also Vol. I, 7.5.3 Security Requirements, Telecommunications and Data Transmission, Monitoring and Responding to External Threats*	n/a
b.	For systems that use public communications networks as defined in Volume I, Section 6 [Telecommunications Requirements], this information shall also include:	*Vol. I, 7.6.2.1 Security Requirements, Use of Public Communications Networks, Documentation of Mandatory Security Activities; also Vol. I, 7.5.2 Protection Against External Threats; also Vol. I, 7.5.3 Monitoring and Responding to External Threats Wireless: Vol. I, 7.7.1 Controlling Usage; 7.7.2 Identifying Usage*	
	i. Capabilities used to provide protection against threats to third party products and services.		n/a
	ii. Policies and processes used by the vendor to ensure that such protection is updated to remain effective over time.		n/a
	iii. Policies and procedures used by the vendor to ensure that current versions of such capabilities are distributed to user jurisdictions and are installed effectively by the jurisdiction.		n/a
	iv. A detailed description of the system capabilities and procedures to be employed by the jurisdiction to diagnose the occurrence of a denial of service attack, to use an alternate method of voting, to determine when it is appropriate to resume voting over the network, and to consolidate votes cast using the alternate method.		n/a
	v. A detailed description of all activities to be performed in setting up the system for operation that are mandatory to ensure effective system security, including testing of security before an election.		n/a
	vi. A detailed description of all activities that should be prohibited during system setup and during the timeframe for voting operations, including both the hours when polls are open and when polls are closed.		n/a
VII, 2.6.6	**Other Elements of an Effective Security Program**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall provide a detailed description of the following additional procedures required for use by the purchasing jurisdiction:		
a.	Administrative and management controls for the voting system and election management, including access controls.		Security Spec. Sec. 7 Other Elements of an Effective Security Program
b.	Internal security procedures, including operating procedures for maintaining the security of the software for each system function and operating mode.		Security Spec. Sec. 7 Other Elements of an Effective Security Program
c.	Adherence to, and enforcement of, operational procedures (e.g., effective password management).		Security Spec. Sec. 7 Other Elements of an Effective Security Program
d.	Physical facilities and arrangements.		Security Spec. Sec. 7 Other Elements of an Effective Security Program
e.	Organizational responsibilities and personnel screening.		Security Spec. Sec. 7 Other Elements of an Effective Security Program
	This documentation shall be prepared such that these requirements can be integrated by the jurisdiction into local administrative and operating procedures.		Security Spec. Sec. 7 Other Elements of an Effective Security Program
VII, 2.7	**System Test and Verification Specification**		
	The vendor shall provide test and verification specifications for:		
	Development test specifications		System Test and Verification Plan V1.2-all testing
	National certification test specifications		System Test and Verification Plan V1.2-all testing
VII, 2.7.1	**Development Test Specifications**		
	The vendor shall describe the plans, procedures, and data used during software development and system integration to verify system logic correctness, data quality, and security. This description shall include:		
a.	Test identification and design, including:		
	1) Test structure		System Test and Verification Plan V1.2 Sec. 1.2 Objectives; Sec. 2 Test Coverage; Final Quality Assurance Report Ver. 1.1 Sec. 2 Test Environment; Sec. 3 Test Case Design and Verification
	2) Test sequence or progression		System Test and Verification Plan V1.2 Sec. 2 Test Coverage; Sec. 3 Test Methodology; Final Quality Assurance Report

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Ver. 1.1 Sec. 3 Test Case Design and Verification; Sec. 4 System Level Testing
	3) Test conditions		System Test and Verification Plan V1.2 Sec. 3 Test Methodology; Sec. 4 Test Environment; Final Quality Assurance Report Ver. 1.1 Sec. 3 Test Case Design and Verification; Sec. 4 System Level Testing
b.	Standard test procedures, including any assumptions or constraints		System Test and Verification Plan V1.2 Sec. 3 Test Methodology; Sec. 6 Test Project Management; Appendix A Test Type Definitions; Final Quality Assurance Report Ver. 1.1 Sec. 3 Test Case Design and Verification; Sec. 4 System Level Testing
c.	Special purpose test procedures including any assumptions or constraints		System Test and Verification Plan V1.2 Sec. 3 Test Methodology; Sec. 6 Test Plan Management; Appendix A Test Type Definitions; Final Quality Assurance Report Ver. 1.1 Sec. 4 System Level Testing; Appendix A Usability Test Report
d.	Test data; including the data source, whether it is real or simulated, and how test data are controlled		CM System Test and Verif. V1.3: Verified Sec. 3.3.1.4 Test Data information has been added; Final Quality Assurance Report Ver. 1.1, Sec. 4 Introduction
e.	Expected test results		System Test and Verification Plan V1.2 Sec. 3.3.1.1 Test Cases
f.	Criteria for evaluating test results		System Test and Verification Plan V1.2 Sec. 6 Test Project Management; Appendix A Test Type Definitions; Appendix B Defect Severity Classification
	Additional details for these requirements are provided by MIL-STD-498, Software Test Plan and Software Test Description. In the event that test data are not available, the accredited test lab shall design test cases and procedures equivalent to those ordinarily used during product verification.		
VII, 2.7.2	**National Certification Test Specifications**		
	The vendor shall provide specifications for verification and validation of overall software performance. These specifications shall cover:		
a.	Control and data input/output		System Test and Verification Plan V1.2 Sec. 2 Test Coverage; Sec. 3 Test Methodology; Final Quality Assurance Report Ver. 1.1: results of testing reported.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
b.	Acceptance criteria		System Test and Verification Plan V1.2 Sec. 2 Test Coverage; Final Quality Assurance Report Ver. 1.1: results of testing reported.
c.	Processing accuracy		System Test and Verification Plan V1.2 Sec. 3.1.1.2 Test Coverage; Final Quality Assurance Report Ver. 1.1: results of testing reported.
d.	Data quality assessment and maintenance		System Test and Verification Plan V1.2 Sec. 2 Test Coverage; Sec. 3 Test Methodology; Final Quality Assurance Report Ver. 1.1: results of testing reported.
e.	Ballot interpretation logic	*Vol. I, 7.9.3 e, VVPAT Requirements, Electronic and Paper Record Storage*	System Test and Verification Plan V1.2 Sec. 3.1.2.4 Election Programming (Software); Sec. 3.1.3.3 Casting a Ballot (Software and Hardware); Final Quality Assurance Report Ver. 1.1: results of testing reported.
f.	Exception handling		System Test and Verification Plan V1.2 Sec. 3.1.1.3 Exception Recovery (Hardware); Final Quality Assurance Report Ver. 1.1: results of testing reported.
g.	Security		System Test and Verification Plan V1.2 Sec. 2.6 Security; Final Quality Assurance Report Ver. 1.1: results of testing reported.
h.	Production of audit trails and statistical data		System Test and Verification Plan V1.2 Sec. 3.1.1.2 Accuracy (Hardware and Software); Sec. 3.1.1.4 Integrity (Hardware and Software); Sec. 3.1.1.5 System Audit (Hardware and Software); Sec. 3.1.4.3 Producing Reports (Software); Final Quality Assurance Report Ver. 1.1: results of testing reported.
	The specifications shall identify procedures for assessing and demonstrating the suitability of the software for election use.		System Test and Verification Plan V1.2 Sec. 3 Test Methodology; 6 Test Project Management; Appendix A Test Type Definitions; Final Quality Assurance Report Ver. 1.1 Sec. 4 System Level Testing, Conclusions and Tables with results; Sec. 5 Conclusion
VII, 2.8	**System Operations Procedures**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	This documentation shall provide all information necessary for system use by all personnel who support pre-election and election preparation, polling place activities and central counting activities, as applicable, <u>with regard to all system functions and operations identified in Subsection 2.3 above</u> [Ballot Prep.; Prep. of Elec.-specific software/firmware; ballot installation and ballot counting software; system and equip. tests; all polling place operations by voters and officials including status message generation; closing the polling place; reports by voting machine, polling place, precinct; consolidated reports; reports of audit trails]. The nature of the instructions for operating personnel will depend upon the overall system design and required skill level of system operations support personnel.		**BLM UG**; **EM UG**; **ES UG**; **OVCS UG**; **PW Guide**; **SS UG**; **TAB UG**; **TC UG**; **TR UG**; **TRB Guide**; **WHT Guide**
	The system operations procedures shall contain all information that is required for the preparation of detailed system operating procedures, and for operator training, as described below.		**BLM UG**; **EM UG**; **ES UG**; **OVCS UG**; **PW Guide**; **SS UG**; **TAB UG**; **TC UG**; **TR UG**; **TRB Guide**; **WHT Guide**
VII, 2.8.1	**Introduction**		
	The vendor shall provide a summary of system operating functions and modes, in sufficient detail to permit understanding of the system's capabilities and constraints.	*Vol. I, 2.5.1 System Audit*	**BLM UG** Sec. 1 Introduction; **EM UG** Sec. 1 Overview; **ES UG** Sec. 1 Introduction; **OVCS UG** Sec. 1 Introduction; **PW Guide** Sec. 1 Introduction; **SS UG** Sec. 1 Introduction; **TAB UG** Sec. 1 Introduction; **TC UG** Sec. 1 Introduction; **TR UG** Sec. 1 Introduction; **TRB Guide** Sec. 1 Introduction; **WHT Guide** Sec. 1 Introduction
	The roles of operating personnel shall be identified and related to the operating modes of the system.		**BLM UG** Sec. 1.2 Install and and Updating; Sec. 2.2 Admin User vs Superuser ; Sec. 2.3 Add Users; Sec. 11.2 Database Backup and Restore; **EM UG** Sec. 1.8 Getting Started; Sec. 7.2 Exporting an Election; **ES UG** Sec. 1.5 Security; **OVCS UG** Sec. 1.0; Sec. 1.1 OVCS Overview; **PW Guide** Sec. 1 Introduction; **SS UG** Sec. 1.3 About This Guide; **TAB UG** Sec. 3 User management; **TC UG** Sec. 1.1 Overview states TC is operated by maintenance technicians and supervisors; **TR UG** Sec. 1.5 Security; Sec. 2.2 Application startup; **TRB Guide** Sec. 2 Troubleshooting: applies to

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			personnel designated to assist elec. officials; **WHT Guide** Sec. 1.5 Recommended Technician Responsibilities
	Decision criteria and conditional operator functions (such as error and failure recovery actions) shall be described.		**BLM UG** Appendix B Interface Error Messages; **EM UG** Sec. 1.7 General Interface Information; Sec. 1.12 Handling System Failures; App. A User Interface Error Messages; screen shots and text; **ES UG** screen shots and text; Sec. 1.9 Handling System Failures; App. A User Interface Error Messages; **OVCS UG** Ver. 1.3 Sec. 1.10 Handling System Failures; App. A User Interface Error Messages; screen shots and text throughout the manual; **PW Guide**: screen shots/text; Sec. 13 Troubleshooting discuss these; **SS UG** screen shots and text; Sec. 1.11 Handling System Failures; Ap. A User Interface Error Messages; **TAB UG** screen shots and text; Sec. 1.10 Handling System Failures; and Appendix A User Interface Error Messages; **TC UG** screen shots, text, and App. A User Interface Error Messages; **TR UG** Sec. 1.10 Handling System Failures; screen shots and text throughout the manual; **TRB Guide** Sec. 2 Troubleshooting entire section; **WHT Guide** Sec. 2.3 Recovery; Sec. 5.2 Handling System Failures During Downloading
	The vendor shall also list all reference and supporting documents pertaining to the use of the system during election operations.		**BLM UG** Sec. 1.2 Applicable Documents; **EM UG** Sec. 1.2 Applicable Documents; **ES UG** Sec. 1.2 Applicable Documents; **OVCS UG** Ver. 1.3 Applicable Documents; **PW Guide** none – poll worker does not have access to other Unisyn docs; **SS UG** Sec. 1.2 Applicable Documents; **TAB UG** Sec. 1.2 Applicable Documents; **TC UG** Sec. 1.2 Applicable Documents; **TR UG** Sec. 1.2 Applicable Documents; **TRB Guide** Sec. 1.1 Applicable Documents; **WHT Guide** Sec. 1.1 Applicable Documents
VII, 2.8.2	**Operational Environment**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall describe the system environment, and the interface between the user or operator and the system. The vendor shall identify all facilities, furnishings, fixtures, and utilities that will be required for equipment operations, including equipment that operates at the:		
a.	Polling place		n/a for **BLM UG**; throughout **EM UG;** throughout **ES UG;** n/a for **OVCS UG**; **PW Guide**: entire manual; n/a for **SS UG**; n/a for **TAB UG**; n/a for **TC UG**; n/a for **TR UG**; **TRB Guide** entire manual; n/a for **WHT Guide**
b.	Central count facility		n/a for **BLM UG**; throughout **EM UG**; throughout **ES UG**; **OVCS UG** Sec. 1.1 OVCS Overview: Elec. Hqtrs; n/a for **PW Guide**; n/a for **SS UG** ; **TAB UG** entire manual; n/a for **TC UG**; **TR UG** entire manual; n/a for **TRB Guide**; n/a for **WHT Guide**
c.	Other locations		Applies to Election Officials' site for **BLM UG**; **EM UG**: Election Officials' site; **ES UG** Election headquarters warehouse; **OVCS UG** Sec. 1.1 OVCS Overview: Cen. Count location in smaller jurisdiction; n/a for **PW Guide**; **SS UG** Sec. 1.1 Overview - Election headquarters warehouse; **TAB UG** Sec. 1.1 Overview – application that manages data uploaded via TC & OVCS units; 1.7 Network Configuration; **TC UG** Sec. 1.1 Introduction; **TR UG** Sec. 1.1 Introduction; n/a for **TRB Guide**; **WHT Guide:** WH Technician duties are performed at the Election Warehouse
VII, 2.8.3	**System Installation and Test Specification**		
	The vendor shall provide specifications for validation of system installation, acceptance, and readiness. These specifications shall address all components of the system and all locations of installation (e.g., polling place, central count facility), and shall address all elements of system functionality and operations identified in Subsection 2.3 above, including:	*also Vol. I, 5.1.1 Software Requirements, Software Sources*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	Pre-voting functions	*Vol. I, 2.2.3 Ballot and Program Installation and Control*	**BLM UG** Sec. 1.2 Installing and Updating; Sec. 2.1 Replace the Default Superuser; throughout **EM UG**; Sec. 1.4 Installing and Updating; **ES UG** 1.6 Installing and Updating; Sec. 2 Election Loading; n/a for **OVCS UG**; **PW Guide** Sec. 2 Before Polls Open; **SS UG** Sec. 1 Introduction; Sec. 2 Software Loading; **TAB UG** Sec. 1 Introduction; Sec. 2 Using the Tabulator; n/a for **TC UG**; n/a for **TR UG**; n/a for **TRB Guide**; **WHT Guide** Sec. 1.6.1 Pre-Voting Equipment Preparation; Sec. 2 Starting Up and Shutting Down OVD Units; Sec. 3 OVD Software Overview; Sec. 4 Loading Updated Software on OVD Units; Sec. 5 Loading a New Election on OVD Units; Sec. 6 Testing the Voting Systems; Sec. 7 Preparing Poll Location Equipment
b.	Voting functions		n/a for **BLM UG**; n/a for **EM UG**; n/a for **ES UG;** n/a for **OVCS UG**; **PW Guide** Sec. 4 Typical voting; Sec. 5 ADA voting procedure utilizing the OVI; Sec. 6 Write-ins; Sec. 7 Provisional; n/a **SS UG**; n/a for **TAB UG**; n/a for **TC UG**; n/a for **WHT Guide**
c.	Post-voting functions		n/a for **BLM UG**; n/a for **EMUG**; n/a for **ES UG; OVCS UG**: entire manual; **PW Guide** Sec. 7 Close the polls; Sec. 10 Reconciling ballots; Sec. 11 Returning Supplies; n/a **SS UG; TAB UG** Sec. 1.1 Introduction; n/a for **TC UG**; **TR UG** Sec. 1.1 Introduction; n/a for **TRB Guide**; **WHT Guide** Sec. 9 Post-Election: Receiving Equipment; Sec. 10 Election Audits; Sec. 11 Special Election Sessions
d.	General capabilities		**EMUG** Sec. 1 Overview; **ES UG** Sec. 1 Introduction; **OVCS UG** Sec. 1.1 Introduction; **PW Guide** Sec. 1 Introduction; **SS UG** Sec. 1 Introduction; **TAB UG** Sec. 1 Introduction; **TC UG** Sec. 1.1 Introduction; **TR UG** Sec. 1 Introduction; **TRB Guide** Sec. 1 Introduction; **WHT Guide** Sec. 1 Introduction
VII, 2.8.4	**Operational Features**		
	The vendor shall provide documentation of system operating features that meets the following requirements:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	A detailed description of all input, output, control, and display features accessible to the operator or voter		**BLM UG** screen shots and text; **EM UG** screen shots and text; **ES UG** screen shots and text; **OVCS UG** screen shots and text; **PW Guide** screen shots and text; **SS UG** screen shots and text; **TAB UG** text and screen shots; **TC UG** Sec. 1.5 Installing and Updating; **TR UG** screen shots and text; **TRB Guide** screen shots and text; **WHT Guide** screen shots and text
b.	Examples of simulated interactions to facilitate understanding of the system and its capabilities		**BLM UG** screen shots and text; Appendix B Interface Error Messages Appendix C BLM System Limits; **EM UG** screen shots and text; **ES UG** screen shots and text; 1.7 Election server configuration; Sec. 2 Election loading; **OVCS UG** screen shots and text; **PW Guide** screen shots and text; **SS UG** screen shots and text; **TAB UG** screen shots and text; **TC UG** screen shots and text; **TR UG** screen shots and text; **TRB Guide** screen shots and text; **WHT Guide** screen shots and text
c.	Sample data formats and output reports	*Vol. II, 2.1 Desc. Of the TDP, Scope* *Vol. I, 2.1.6 g. Election Management System*	**BLM UG** Sec. 9 Generate Reports; **EM UG** Sec. 6 Reports; **ES UG** Sec. 3 Log Files; **OVCS UG** Sec. 6 OVCS Reports; **PW Guide** Sec. 9 Close the polls; **SS UG** Sec. 3 Logs Menu; **TAB UG** Sec. 8.5.3 Test tabulator accumulation and reports; Sec. 8.5.4 Test tabulator reports; **TC UG** screen shots and text. No reports generated by TC; **TR UG** Sec. 3 Reports; Sec. 4.1 Application log; **TRB Guide**: sample of Admin log Sec. 2.4.3 Election password required; Sec. 2.6.6 Printing an election summary on the OVO; Sec. 2.6.7 Printing a close report summary on the OVI; **WHT Guide** Sec. 10 Election Audits; Sec. 11 Special election Sessions
d.	Illustrate and describe all status indicators and information messages		**BLM UG** screen shots and text; Appendix B Interface Error Messages Appendix C BLM System Limits; **EM UG** screen shots and text; App. A User Interface error messages; **ES UG** screen shots and text; App. A User Interface Error Messages; **OVCS UG** screen shots and text; App. A User Interface Error Messages; **PW Guide** screen shots and text; Sec. 13 Troubleshooting; **SS UG** screen shots and text; App. A User

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Interface Error Messages; **TAB UG** screen shots and text; App. A User Interface Error Messages; **TC UG** screen shots and text; Appendix A; **TR UG** screen shots and text; App. A User interface error messages; **TRB Guide** screen shots and text; App. A Error Code Table; **WHT Guide** text and screen shots; Appendix A OVD Administrative Log Error Codes
VII, 2.8.5	**Operating Procedures**		
	The vendor shall provide documentation of system operating procedures that meets the following requirements:	*also Vol. I, 5.1.1 Software Requirements, Software Sources*	
a.	Provides a detailed description of procedures required to initiate, control, and verify proper system operation.		**BLM UG** Appendix B Interface Error Messages; **EM UG** Sec. 1.4 Installing and Updating; **ES UG** Sec. 1.6 Installing and Updating; **OVCS UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Networking; **PW Guide** Sec. 3 Precinct Startup; **SS UG** Sec. 1.7 Installing and Updating; **TAB UG** Sec. 1.6 Installing and Updating; **TC UG** Sec. 1.5 Installing and Updating; **TR UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Network Configuration and Setup; Sec. 2 Starting Tabulator Reports; **TRB Guide** Sec. 2.2 Startup Issues; **WHT Guide** Sec. 2 Starting up and Shutting Down OVD Units
b.	Provides procedures that clearly enable the operator to assess the correct flow of system functions (as evidenced by system-generated status and information messages).		**BLM UG** App. B Interface Error Messages; **EM UG** text and App. A User Interface Error Messages; **ES UG** screen shots and text; App. A User Interface Error Messages; **OVCS UG** screen shots and text; **PW Guide** screen shots and text; **SS UG** screen shots and text; **TAB UG** screen shots and text; **TC UG** screen shots and text; **TR UG** screen shots and text; **TRB Guide** screen shots and text; App. A Error Code Table; **WHT Guide** screen shots and text
c.	Provides procedures that clearly enable the operator to intervene in system operations to recover from an abnormal system state.		**BLM UG** Sec. 11.3 Handling system failures; App. B User Interface Error Messages; **EM UG** text and App. A User Interface Error Messages; **ES UG** screen shots and text; Sec. 1.9 Handling System Failures; and Appendix A User Interface Error Messages; **OVCS UG** Sec. 1.10 Handling System Failures; Appendix A User Interface

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Error Messages; **PW Guide** Sec. 13 Troubleshooting; screen shots and text; **PW Guide** Sec. 13 Troubleshooting; screen shots and text; **SS UG** screen shots and text; Sec. 1.11 Handling System Failures; and Appendix A User Interface Error Messages; **TAB UG** Sec. 1.10 Handling System Failures; **TC UG** Sec. 2.3 Upload Errors; **TR UG** Sec. 1.10 Handling System Failures; screen shots and text throughout the manual; **TRB Guide** App. A Error Code Table; screen shots and text; **WHT Guide** Sec. 2.3 Recovery; Sec. 5.2 Handling System Failures During Downloading
d.	Defines and illustrates the procedures and system prompts for situations where operator intervention is required to load, initialize, and start the system.		**BLM UG** Sec. 1.3 Installing and Updating; **EM UG** 1.4 Installing and Updating; **ES UG** screen shots and text and Appendix A User Interface Error Messages; **OVCS User Guide** Sec. 1.10 Handling System Failures; Appendix A User Interface Error Messages; **PW Guide** Sec. 3 Precinct Startup; **SS UG** Sec. 1 Introduction and Sec. 2 Software Loading; **TAB UG** Sec. 1 Introduction; Sec. 2 Using the Tabulator; **TC UG** Sec. 2.3 Upload Errors; **TR UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Network Configuration and Setup; Sec. 2 Starting Tabulator Reports; **TRB Guide** screen shots and text; App. A Error Code Table; **WHT Guide** Sec. 2.3 Recovery; Sec. 5.2 Handling System Failures During Downloading
e.	Defines and illustrates procedures to enable and control the external interface to the system operating environment if supporting hardware and software are involved. Such information also shall be provided for the interaction of the system with other data processing systems or data interchange protocols.		**BLM UG** Sec. 10 Export the Election; **EM UG** Sec. 7 Export the Election to CD; Sec. 9 TM Upload and Cleaning ; **ES UG** Sec. 1.7 Election Server Configuration; **OVCS UG** Sec. 1.1 OVCS Overview: only two components: desktop and scanner; **PW Guide** Sec. 3 Precinct Startup; **SS UG** Sec. 1.9 Software Server Configuration; **TAB UG** Sec. 1.3 General Interface Information; Sec. 1.7 Network Configuration; **TC UG**: TC resides on a PC; peripheral hardware is a TM.; **TR UG** Sec. 1.1.7 Network Configuration and Setup; **TRB Guide** Sec. 2 Troubleshooting; n/a for **WHT Guide**

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
f.	Provides administrative procedures and off-line operator duties (if any) if they relate to the initiation or termination of system operations, to the assessment of system status, or to the development of an audit trail.		**BLM UG** Sec. 11.3 Handling System Failures; **EM UG** text and App. A User Interface Error Messages; **ES UG** V1.4 screen shots and text; Sec. 1.9 Handling System Failures; and Appendix A User Interface Error Messages; **OVCS UG** Sec. 1.10 Handling System Failures; Appendix A User Interface Error Messages; **PW Guide** Sec. 3 Precinct Startup; Sec. 3.4 Initializing Precincts with Polls Open; Sec. 13 Troubleshooting; **SS UG** screen shots and text; Sec. 1.11 Handling System Failures; and Appendix A User Interface Error Messages; **TAB UG** screen shots and text; Sec. 1.10 Handling System Failures; and Appendix A User Interface Error Messages; **TC UG** Sec. 2.3 Upload Errors; **TR UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Network Configuration and Setup; Sec. 2 Starting Tabulator Reports; Sec. 1.10 Handling System Failures; **TRB Guide** Sec. 2.1.1 Problem escalation; n/a for **WHT Guide**
g.	Supports successful ballot and program installation and control by election officials, provides a detailed work plan or other form of documentation providing a schedule and steps for the software and ballot installation, which includes a table outlining the key dates, events and deliverables.	*also Vol. I, 2.2.3 a. Pre-Voting Capabilities, Ballot and Program Installation and Control*	**BLM UG** Sec. 8 Generate Ballots; **EM UG** Sec. 2 Elections; Installation information is included in **ES UG**; table of key dates and activities is included in the System Overview, Sec. 1 Pre-Election; n/a for **OVCS UG**; n/a for **PW Guide**; n/a for **SS User Guide**; n/a for **TAB UG**; n/a for **TC UG**; **TR UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Network Configuration and Setup; Sec. 2 Starting Tabulator Reports; n/a for **TRB Guide**; n/a for **WHT Guide**
h.	Supports diagnostic testing, specifies diagnostic tests that may be employed to identify problems in the system, verifies the correction of maintenance problems; and isolates and diagnoses faults from various system states.		**BLM UG** Sec. 11 Maintenance and Troubleshooting; screen shots and error messages; **EM UG** text and screen shots, particularly Sec. 1.12 Handling System Failures and App. A User Interface Error Messages; **ES UG** screen shots and text; Sec. 1.9 Handling System Failures; and Appendix A User Interface Error Messages; **OVCS UG** Sec. 1.10 Handling System Failures; Appendix A User Interface Error Messages; **PW Guide:** Sec. 13 Troubleshooting, Sec. 14 Diagnostic Tests and text throughout the manual; **SS UG** screen shots and text; Sec. 1.11 Handling System

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Failures; and Appendix A User Interface Error Messages; **TAB UG** screen shots and text; Sec. 1.10 Handling System Failures; and Appendix A User Interface Error Messages; **TC UG** Sec. 2.3 Upload Errors; App. A User Interface Error Messages; **TR UG** Sec. 1.6 Installing and Updating; Sec. 1.7 Network Configuration and Setup; Sec. 2 Starting Tabulator Reports Sec. 1.10 Handling System Failures; **TRB Guide** App. A Error Code Table; **WHT Guide** Sec. 2.3 Recovery; Sec. 6.2 System Diagnostics
VII, 2.8.6	**Operations Support**		
	The vendor shall provide documentation of system operating procedures that meets the following requirements:		
a.	Defines the procedures required to support system acquisition, installation, and readiness testing. These procedures may be provided by reference, if they are contained either in the system hardware specifications, or in other vendor documentation.		**BLM UG** Sec. 1.3 Installing and Updating; **EM UG** Sec. 1.4 Installing and Updating; **ES UG**: user is directed to contact Unisyn representative if problems occur; **OVCS UG**: Sec. 1 Introduction; Sec. 3 OVCS Application Setup; Sec. 5 Upload Sessions; **PW Guide** Sec. 3 Precinct Startup; Sec. 3.4 Initializing Precincts with Polls Open; Sec. 13 Troubleshooting; **SSUG**: User is directed to contact Unisyn representative if problems occur; **TAB UG** User is directed to contact Unisyn representative if problems occur; **TC UG** Sec. 1.5 Installing and Updating; **TR UG** Sec. 1.6 Installing and Updating; **TRB Guide**: system is delivered to Voting Precinct with election loaded; **WHT Guide** Sec. 2 Starting up and Shutting Down OVD Units
b.	Describes procedures for providing technical support, system maintenance and correction of defects, and for incorporating hardware upgrades and new software releases.		**BLM UG** Sec. 1.11 Maintenance and Troubleshooting; App. B User Interface Error Messages; screen shots and text; **EM UG** Sec. 1.12 Handling System Failures; **ES UG**: user is directed to contact Unisyn; **OVCS UG** Sec. 1.6.2 OVCS Application Installation/Upgrade; Sec. 1.10 Handling System Errors; Sec. 7.6 Scanner Service and Maintenance; Canon User Guide; **PW Guide** Sec. 1.1 Troubleshooter Hotline; references throughout the manual to contact an Election Official, technician, etc.; **SSUG**:

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			User is directed to contact Unisyn representative if problems occur; **TAB UG** User is directed to contact Unisyn representative if problems occur; **TC UG** Appendix A; **TR UG** Sec. 1.10 Handling System Failures; **TRB Guide** Sec. 2.1 Troubleshooting Basics; **WHT Guide** Sec. 2.3 Recovery; Sec. 4 Loading Updated Software on OVD Units; Sec. 5 Loading a New Election on OVD Units; Sec. 6 Testing the Voting System
VII, 2.8.7	**Appendices**		
	The vendor may provide descriptive material and data supplementing the various sections of the body of the System Operations Manual. The content and arrangement of appendices shall be at the discretion of the vendor. Topics recommended for discussion include:		
a.	**Glossary:** A listing and brief definition of all terms that may be unfamiliar to persons not trained in either voting systems or computer operations.		OVS Acronyms document
b.	**References:** A list of references to all vendor documents and to other sources related to operation of the system.		**BLM UG** Sec. 1.2 Applicable Documents; **EM UG** Sec. 1.2 Applicable Documents; **ES UG** Sec. 1.2 Applicable Documents; **OVCS UG** Sec. 1.2 Applicable Documents; **PW Guide** xxx; **SS UG** Sec. 1.2 Applicable Documents; **TAB UG** Sec. 1.2 Applicable Documents; **TC UG** Sec. 1.2 Applicable Documents; **TR UG** Sec. 1.2 Applicable Documents; **TRB Guide** Sec. 1.1 Applicable Documents; **WHT Guide** Sec. 1.1 Applicable Documents
c.	**Detailed Examples:** Detailed scenarios that outline correct system responses to faulty operator input; Alternative procedures may be specified depending on the system state.		**BLM UG** App. B Interface Error Messages; App. C BLM System Limits; **EM UG** App. A User Interface Error Messages; **ES UG** screen shots and text; Sec. 1.9 Handling System Failures; and Appendix A User Interface Error Messages; **OVCS UG** text and screen shots; **PW Guide** text and screen shots; **SS UG** screen shots and text; Sec. 1.11 Handling System Failures; and Appendix A User Interface Error Messages; **TAB UG** screen shots and text; Sec. 1.10 Handling System Failures; and

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Appendix A User Interface Error Messages; **TC UG** Appendix A User Interface Error Messages and text throughout the user guide; **TR UG** Sec. 1.10 Handling System Failures; App. A User Interface Error Messages; **TR UG** Appendix A User Interface Error Messages and text throughout the user guide; **TRB Guide** screen shots and text; Appendix A Error Code Table; **WHT Guide** screen shots and text; Appendix A OVD Administrative Log Error Codes
d.	**Manufacturer's Recommended Security Procedures:** This appendix shall contain the security procedures that are to be executed by the system operator.		**BLM UG**. Sec. 1.3 Security discusses; **EM UG** Sec. 1.5 Security; **ES UG** Sec. 1.5 Security; **OVCS UG** Sec. 1.5 Security; Sec. 1.7.3 Setup the Printer; Sec. 1.10 Handling System Failures; Sec. 3.1 Linux Login; etc.; **PW Guide** Sec. 1.2 Disturbances; Sec. 2.1 Precinct Setup; Sec. 2.2 Equipment Setup; **SSUG** Sec. 1.6 Security; **TAB UG** Sec. 1.5 Security; **TC UG** Sec. 1.4 Security; Sec. 2.5 Recommended Procedure while election is in progress; **TR UG** Sec. 1.5 Security; **TRB Guide** Sec. 2.1.3 Maintenance Menu During Voting; OVO ballot box/OVI: locks/seals; **WHT Guide** Sec. 1.3 Security
VII, 2.9	**System Maintenance Manual**		
	The system maintenance procedures shall provide information in sufficient detail to support election workers, information systems personnel, or maintenance personnel in the adjustment or removal and replacement of components or modules in the field. Technical documentation needed solely to support the repair of defective components or modules ordinarily done by the manufacturer or software developer is not required.		**Maint. Spec**. entire manual;
	Recommended service actions to correct malfunctions or problems shall be discussed, along with personnel and expertise required to repair and maintain the system; and equipment, materials, and facilities needed for proper maintenance. This manual shall include the sections listed below.		**Maint. Spec**. entire manual;

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VII, 2.9.1	**Introduction**		
	The vendor shall describe the structure and function of the equipment (and related software) for election preparation, programming, vote recording, tabulation, and reporting in sufficient detail to provide an overview of the system for maintenance, and for identification of faulty hardware or software. The description shall include a concept of operations that fully describes such items as:		
a.	The electrical and mechanical functions of the equipment.		**Maint. Spec**. Sec. 1.4 Summary of System Operations
b.	How the processes of ballot handling and reading are performed (paper-based systems).		**Maint. Spec**. Sec. 1.4 – 1.4.2 Voting and Voting Data
c.	How vote selection and casting of the ballot are performed (DRE systems).		n/a for **Maint. Spec.**
d.	How transmission of data over a network is performed (DRE systems, where applicable.		n/a for **Maint. Spec.**
e.	How data are handled in the processor and memory units.		**Maint. Spec**. Sec. 1.4 Summary of System Operations
f.	How data output is initiated and controlled.		**Maint. Spec**. Sec. 1.4 Summary of System Operations
g.	How power is converted or conditioned.		**Maint. Spec**. Sec. 1.4 Summary of System Operations, Sec. 2.1.3 OVO Power Connection, Sec. 3.1.3 OVI Power Connection
h.	How test and diagnostic information is acquired and used.		**Maint. Spec**. Sec. 1.4 Summary of System Operations, Sec. 1.4.3 System Test and Audits
VII, 2.9.2	**Maintenance Procedures**		
	The vendor shall describe preventive and corrective maintenance procedures for hardware and software.		**Maint. Spec**. Sec. 2 OVO entire section, Sec. 3 OVI entire section
VII, 2.9.2.1	**Preventive Maintenance Procedures**		
	The vendor shall identify and describe:		
a.	All required and recommended preventive maintenance tasks, including software tasks such as software backup, database performance analysis, and database tuning.		**Maint. Spec**. Sec. 2.1.1 Summary of Maintenance Procedures table; Sec. 2.6 OVO Maintaining the Scanner; Sec. 2.1 OVO General System Maintenance; Sec. 3.1 OVI General System Maintenance
b.	Number and skill levels of personnel required for each task.		**Maint. Spec**. Sec. 1.2 Technician Responsibilities

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
c.	Parts, supplies, special maintenance equipment, software tools, or other resources needed for maintenance.		**Maint. Spec**.: rags, cleaning materials listed. Most corrective maintenance is to return equipment. Sec. 1.4.4 Recommended Inventory
d.	Any maintenance tasks that must be coordinated with the vendor or a third party (such as coordination that may be needed for off-the-shelf items used in the system).		**Maint. Spec**. Sec. 1.3 Contacting Unisyn; Sec. 2.1.3.2 (OVO) Power Cable Recommendation; Sec. 2.1.5 (OVO) Maintenance During Voting; Sec. 2.2 OVO Maintaining the PC – Sec. 2.6.5 Replacing the Scanner; Sec. 3.1 OVI Gensys Maintenance – 3.4.2 Replacing the Display
VII, 2.9.2.2	**Corrective Maintenance Procedures**		
	The vendor shall provide fault detection, fault isolation, correction procedures, and logic diagrams for all operational abnormalities identified by design analysis and operating experience.		**Maint. Spec**. Sec. 1.3 Contacting Unisyn; Sec. 2.1.3.2 (OVO) Power Cable Recommendation; Sec. 2.1.5 (OVO) Maintenance During Voting; Sec. 2.2 OVO Maintaining the PC – Sec. 2.6.5 Replacing the Scanner; Sec. 3.1 OVI Gensys Maintenance – 3.4.2 Replacing the Display
	The vendor shall identify specific procedures to be used in diagnosing and correcting problems in the system hardware (or user-controlled software). Descriptions shall include:		
a.	Steps to replace failed or deficient equipment.		**Maint. Spec**. Sec. 1.3 Contacting Unisyn; Sec. 2.1.3.2 (OVO) Power Cable Recommendation; Sec. 2.1.5 (OVO) Maintenance During Voting; Sec. 2.2 OVO Maintaining the PC – Sec. 2.6.5 Replacing the Scanner; Sec. 3.1 OVI Gensys Maintenance – 3.4.2 Replacing the Display
b.	Steps to correct deficiencies or faulty operations in software.		**Maint. Spec**. Sec. 2.1.5.2 OVO; Sec. 3.1.4.2 OVI
c.	Modifications that are necessary to coordinate any modified or upgraded software with other software modules.		**Maint. Spec**.: no modifications
d.	The number and skill levels of personnel needed to accomplish each procedure.		**Maint. Spec**. Sec. 1.2 Technician Responsibilities; Sec. 2.1.6 Maintaining the OVO Case; Sec. 2.3.1 (OVO) Handling, Cleaning, and Storing; Sec. 2.5.2 Cleaning the Print Head; Sec. 2.6.2 Routine Cleaning; Sec. 3.1.5 Maintaining the OVI Case; Sec. 3.4.1 Handling, Cleaning, and Storing; Sec. 3.5.2 Cleaning the Print Head; Sec. 3.6.1 Keypad; Sec. 3.6.2 Headphones; Sec. 3.6.3 Sip and Puff
e.	Special maintenance equipment, parts, supplies, or other resources needed to accomplish each procedure.		**Maint. Spec**.: materials listed. Most corrective maintenance is to return equipment. Contact Unisyn.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
f.	Any coordination required with the vendor, or other party, for off the shelf items.		**Maint. Spec**.: reference is made to the Ballot Paper Spec.
VII, 2.9.3	**Maintenance Equipment**		
	The vendor shall identify and describe any special purpose test or maintenance equipment recommended for fault isolation and diagnostic purposes.		**Maint. Spec**.: no special equipment
VII, 2.9.4	**Parts and Materials**		
	Vendors shall provide detailed documentation of parts and materials needed to operate and maintain the system. Additional requirements apply for paper-based systems.		
VII, 2.9.4.1	**Parts and Materials, Common Standards**		
	The vendor shall provide a complete list of approved parts and materials needed for maintenance. This list shall contain sufficient descriptive information to identify all parts by:	*Vol. I, 4.3.1 b-c. Hardware Requirements, Design, Construction, and Maintenance Characteristics, Materials, Processes, and Parts*	
a.	Type		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
b.	Size		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
c.	Value or range		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
d.	Manufacturer's designation		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
e.	Individual quantities needed		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
f.	Sources from which they may be obtained		**Maint. Spec.** Sec. 1.3 Contacting Unisyn; actions are to contact Unisyn vendor to replace
VII, 2.9.4.2	**Paper-Based Systems**		
	For marking devices manufactured by multiple external sources, the vendor shall provide a listing of sources and model numbers that are compatible with the system.		**Maint. Spec.** Sec. 2.7.2 Electronic Marking

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	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 (sic) 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.	*also Vol. I, 2.2.1.3 c. and following paragraph Functional Requirements, Pre-voting Capabilities, Ballot Production; Vol. I, 4.1.4.2 a-b. Hardware Requirements, Vote Recording Requirements, Paper Based Recording Requirements*	**BPS** Sec. 4.4.1 Black Mark Specifications; Sec. 2 Full Page Ballot Spec.; Sec. 3 OVO Thermal Receipt Paper Spec.; Sec. 4 OVI Ballot Slip Roll Spec.
VII, 2.9.5	**Maintenance Facilities and Support**		
	The vendor shall identify all facilities, furnishings, fixtures, and utilities that will be required for equipment maintenance. In addition, vendors shall specify the assumptions made with regard to any parameters that impact the mean time to repair. These factors shall include at a minimum:	*see Vol. I, 4.3.5 e-g. Hardware Requirements, Design, Construction, and Maintenance, Availability*	
a.	Recommended number and locations of spare devices or components to be kept on hand for repair purposes during periods of system operation.		**Maint. Proc.** Sec. 1.3.4 Recommended Inventory states for OVO/OVI units. Return defective OVO/OVI to Unisyn for replacement.
b.	Recommended number and locations of qualified maintenance personnel who need to be available to support repair calls during system operation.		**Maint. Proc.** Sec. 1.2 Technician Responsibilities
c.	Organizational affiliation (i.e., jurisdiction, vendor) of qualified maintenance personnel.		**Maint. Proc.** Sec. 1.2 Technician Responsibilities
VII, 2.9.6	**Appendices**		
	The vendor may provide descriptive material and data supplementing the various sections of the body of the System Maintenance Manual. The content and arrangement of appendices shall be at the discretion of the vendor. Topics recommended for amplification or treatment in appendices include:		
a.	**Glossary:** A listing and brief definition of all terms that may be unfamiliar to persons not trained in either voting systems or computer maintenance.		Instead of an appendix, the OVS Acronyms document was created. It is referenced in the **Maint. Proc.** Sec. 1.1.
b.	**References:** A list of references to all vendor documents and other sources related to maintenance of the system.		**Maint. Proc.** Sec. 1.1 Other Unisyn Docs

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
c.	**Detailed Examples:** Detailed scenarios that outline correct system responses to every conceivable faulty operator input; alternative procedures may be specified depending on the system state.		**Maint. Proc.** Sec. 2 OVO Entire Test; Sec. 3 OVI Entire Test
d.	**Maintenance and Security Procedures:** This appendix shall contain technical illustrations and schematic representations of electronic circuits unique to the system.		**Maint. Proc.** Associated Vendor Docs
VII, 2.10	**Personnel Deployment and Training Requirements**		
	The vendor shall describe the personnel resources and training required for a jurisdiction to operate and maintain the system.		**PERS** document
VII, 2.10.1	**Personnel**		
	The vendor shall specify the number of personnel and skill levels required to perform each of the following functions:		
a.	Pre-election or election preparation functions (e.g., entering an election, contest and candidate information; designing a ballot; generating pre-election reports),		**PERS** Sec. 1.1 Election Headquarters
b.	System operations for voting system functions performed at the polling place.		PERS Sec. 1.2 Election Day: Precinct Poll Location
c.	System operations for voting system functions performed at the central count facility.		PERS Sect. 1.3 Post-Election: Upload, Tabulation, and Reporting
d.	Preventive maintenance tasks.		**PERS**: Sect. 1.4 Maintenance and Support
e.	Diagnosis of faulty hardware or software.		**PERS**: Sect. 1.4 Maintenance and Support
f.	Corrective maintenance tasks.		**PERS**: Sect. 1.4 Maintenance and Support
g.	Testing to verify the correction of problems.		**PERS**: Sect. 1.4 Maintenance and Support
	A description shall be presented of which functions may be carried out by user personnel, and those that must be performed by vendor personnel.		**PERS**: Sect. 1 Personnel thru 1.4 Maintenance and Support
VII, 2.10.2	**Training**		
	The vendor shall specify requirements for the orientation and training of the following personnel:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	Poll workers supporting polling place operations		**PERS** Sec. 2 Training
b.	System support personnel involved in election programming		**PERS** Sec. 2 Training
c.	User system maintenance technicians		**PERS** Sec. 2 Training
d.	Network/system administration personnel (if a network is used)		**PERS** Sec. 2 Training
e.	Information systems personnel		**PERS** Sec. 2 Training
f.	Vendor personnel		**PERS** Sec. 2 Training
VII, 2.11	**Configuration Management Plan**	*Vol. I, Sec. 9 Configuration Management Requirements*	
	Vendors shall submit a Configuration Management Plan that addresses the configuration management requirements of Volume I, Section 9 [Configuration Management Requirements]. This plan shall describe all policies, processes, and procedures employed by the vendor to carry out these requirements. The Configuration Management Plan shall contain the sections identified below.	*see Vol. I, 9.1.1 Configuration Management Requirements; see Vol. I, 9.1.3 Application of Configuration Management Requirements; Vol. II, 7.4 Examination of Configuration Management Practices*	**CM PLAN** Entire manual
VII, 2.11.1	**Configuration Management Policy**		
	The vendor shall provide a description of its organizational policies for configuration management, addressing the specific requirements of Volume I, Subsection 9.2. These requirements pertain to:	*see Vol. I 9.2 Configuration Management Policy; see Vol. II, 7.4.1 Configuration Management Policy*	
a.	Scope and nature of configuration management program activities		**CM Plan** Sec. 1 Introduction
b.	Breadth of application of vendor's policy and practices to the voting system		**CM Plan** Sec. 2 Configuration Management Policy
VII, 2.11.2	**Configuration Identification**		
	The vendor shall provide a description of the procedures and naming conventions used to address the specific requirements of Volume I, Subsection 9.3. These requirements pertain to:	*see Vol. I, 9.3.1 Config. Identification Class. and Naming Config. Items; Vol. I, 9.3.2 a-c. Configuration Identification, Version Conventions; Vol. II 7.4.2 Configuration Identification*	
a.	Classifying configuration items into categories and subcategories		**CM Plan** Sec. 2 Configuration Management Policy
b.	Uniquely numbering or otherwise identifying configuration items		**CM Plan** : Sec. 3 Configuration Identification; Sec. 8 Configuration Management Resources lists all CM tools and functions; Sec. 5.3

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Documentation Procedures and Sec. 7.1.5 SW Documentation list the subcategories of documentation.; Sec. 5 Configuration Control Procedures; Sec. 2 Configuration Management Policy states communications are in general handled as part of the Linux operating system and Software CM (also answered in VVSG Vol. I Sec. 9.3.1 and Sec. 9.3.2 below)
c.	Naming configuration items		**CM Plan** : Sec. 3 Configuration Identification includes software, hardware, and documentation identification. Sec. 2 Configuration Management Policy states Communications generally handled as part of the Linux operating system and Software Config. Management. Sec. 5.1 Configuration Control Tools discusses tracking tools. (also answered in VVSG Vol. I Sec. 9.3.1 and Sec. 9.3.2 below)
VII, 2.11.3	**Baseline and Promotion**		
	The vendor shall provide a description of the procedures and naming conventions used to address the specific requirements of Volume I, Subsection 9.4. These requirements pertain to:	*Vol. I, 9.4 a-c. Baseline and Promotion Procedures; Vol. II, 7.4.3 Baseline, Promotion, and Demotion Procedures*	
a.	Establishing a particular instance of a system component as the starting baseline.		**CM Plan** Sec. 4 Baseline and Promotion (also answered in VVSG Vol. I Sec. 9.4 below)
b.	Promoting subsequent instances of a component to baseline throughout the system development process for the first complete version of the system submitted for testing.		**CM Plan** Sec. 4 Baseline and Promotion (also answered in VVSG Vol. I Sec. 9.4 below)
c.	Promoting 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).		**CM Plan** Sec. 4 Baseline and Promotion (also answered in VVSG Vol. I Sec. 9.4 below)
VII, 2.11.4	**Configuration Control Procedures**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall provide a description of the procedures used by the vendor to approve and implement changes to a configuration item to prevent unauthorized additions, changes, or deletions to address the specific requirements of Volume I, Subsection 9.5. These requirements pertain to:	*Vol. I, 9.5 a-d. Configuration Control Procedures;* *Vol. II, 7.4.4 Configuration Control Procedures*	
a.	Developing and maintaining internally developed items		**CM Plan** Sec. 5.2 Developing and Maintaining Internally Developed Items (also answered in VVSG Vol. I Sec. 9.5 below
b.	Developing and maintaining third party items		**CM Plan** Sec. 5.2 Developing and Maintaining Internally Developed Items (also answered in VVSG Vol. I Sec. 9.5 below
c.	Resolving internally identified defects		**CM Plan** Sec. 6.1 Internal Modification Requests
d.	Resolving externally identified and reported defects		**CM Plan** Sec. 5.2 Developing and Maintaining Internally Developed Items (also answered in VVSG Vol. I Sec. 9.5 below
VII, 2.11.5	**Release Process**		
	The vendor shall provide a description of the contents of a system release, and the procedures and related conventions by which the vendor installs, transfers, or migrates the system to accredited voting system testing laboratories and customers to address the specific requirements of Volume I, Subsection 9.6. These requirements pertain to:	*see Vol. I, 9.6 Release Process;* *Vol. II, 7.4.5 Release Process*	
a.	A first release of the system to an accredited test lab.		**CM Plan** Sec. 7.1 Product Release (also answered in VVSG Vol. I Sec. 9.6 below)
b.	A subsequent maintenance or upgrade release of a system, or particular components, to an accredited test lab.		**CM Plan** Sec. 7.4. 1 Release Notes (also answered in VVSG Vol. I Sec. 9.6 below)
c.	The initial delivery and installation of the system to a customer.		**CM Plan** Sec. 6 Release Process (also answered in VVSG Vol. I Sec. 9.6 below)
d.	A subsequent maintenance or upgrade release of a system, or particular components, to a customer.		**CM Plan** Sec. 6 Release Process (also answered in VVSG Vol. I

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Sec. 9.6 below)
VII, 2.11.6	**Configuration Audits**		
	The vendor shall provide a description of the procedures and related conventions for the two audits required by Volume I, Subsection 9.7. These requirements pertain to:		
a.	Physical configuration audit that verifies the voting system components submitted for certification testing to the vendor's technical documentation.	*see Vol. I, 9.7.1 a–h. Configuration Audits, Physical Configuration Audit; Vol. II, 6.6 Physical Configuration Audit; Vol. II, 7.4.6 Configuration Audits*	presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
b.	Functional configuration audit that verifies the system performs all the functions described in the system documentation.	*see Vol. I, 9.7.2 a-b. Configuration Audits, Functional Configuration Audit; Vol. II, 6.7 Functional Configuration Audit; Vol. II, 7.4.6 Configuration Audits*	presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
VII, 2.11.7	**Configuration Management Resources**		
	The vendor shall provide a description of the procedures and related conventions for maintaining information about configuration management tools required by Volume I, Subsection 9.8. These requirements pertain to information regarding:	*Vol. I, 9.8 Configuration Management Resources; Vol. II, 7.4.7 Configuration Management Resources*	
a.	Specific tools used, current version, and operating environment		**CM Plan**: Sec. 8 Configuration Management Resources
b.	Physical location of the tools, including designation of computer directories and files		**CM Plan**: Sec. 8 Configuration Management Resources
c.	Procedures and training materials for using the tools		**CM Plan**: Sec. 8 Configuration Management Resources
VII, 2.12	**Quality Assurance**		
	Vendors shall submit a Quality Assurance Program that addresses the quality assurance requirements of Volume I, Section 8. This plan shall describe all policies, processes, and procedures employed by the vendor to ensure the overall quality of the system for its initial development and release and for subsequent modifications and releases. The Quality Assurance Program shall, at a minimum, address the topics indicated below.	*also Vol. I, 8.2 a-e. Quality Assurance Requirements, General Requirements; Vol. II, 7.5 Examination of Quality Assurance Practices; Vol. I, 4.3.7 Workmanship; Vol. I, 8.3 Components from Third Parties*	**QA Plan**: Entire Document
VII, 2.12.1	**Quality Assurance Policy**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	The vendor shall provide a description of its organizational policies for quality assurance, including:	*specific requirements listed in Vol. II, 7.5.1 Quality Assurance Policy*	
a.	Scope and nature of Quality Assurance activities		**QA Plan** Sec. 1 Introduction
b.	Breadth of application of vendor's policy and practices to the voting system		**QA Plan** Sec. 1 Introduction
VII, 2.12.2	**Parts and Materials Test**		
	The vendor shall provide a description of its practices for parts and materials tests and examinations that meet the requirements of Volume I, Subsection 8.5.	*see Vol. I, 8.5 c. Parts and Materials Special Tests and Examinations; Vol. II, 7.5.2 Parts and Materials Tests*	**QA Plan** Sec. 3 Parts and Materials Examinations
VII, 2.12.3	**Quality Conformance Inspections**		
	The vendor shall provide a description of its practices for quality conformance inspections that meet the requirements of Volume I, Subsection 8.6. For each test performed, the record of tests provided shall include:	*see also Vol. I 8.6 Quality Conformance Inspections; Vol. II, 7.5.3 Quality Conformance Inspections*	
a.	Test location		**QA Plan:** Sec. 2.2 Test Document Definitions
b.	Test date		**QA Plan:** Sec. 2.2 Test Document Definitions
c.	Individual who conducted the test		**QA Plan:** Sec. 2.2 Test Document Definitions
d.	Test outcomes		**QA Plan:** Sec. 2.2 Test Document Definitions
VII, 2.12.4	**Documentation**		
	The vendor shall provide a description of its practices for documentation of the system and system development process that meet the requirements of Volume I, Subsection 8.7.	*see Vol. I, 8.7 Quality Assurance Requirements, Documentation; Vol. I, 2.1.1.1 Description of TDP, Required Content for Initial Certification; Vol. I, 2.1.1.2 Required Content for System Changes and Recertification; Vol. II, 7.5.4 Quality Assurance, Documentation*	**QA Plan** Sec. 4 Document control
VII, 2.13	**System Change Notes**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Vendors submitting modifications for a system that has been tested previously and received national certification shall submit system change notes. These will be used by the accredited test lab to assist in developing and executing the test plan for the modified system. The system change notes shall include the following information:	*Vol. II, 2.1.1.2 Required Content for System Changes and Recertification*	
a.	Summary description of the nature and scope of the changes, and reasons for each change.		N/A First submission
b.	A listing of the specific changes made, citing the specific system configuration items changed and providing detailed references to the documentation sections changed.		N/A First submission
c.	The specific sections of the documentation that are changed (or completely revised documents, if more suitable to address a large number of changes).		N/A First submission
d.	Documentation of the test plan and procedures executed by the vendor for testing the individual changes and the system as a whole, and records of test results.		N/A First submission
VI Sec. 2	**Functional Requirements**		
VI, 2.1	**Overall System Capabilities**		
VI, 2.1.1	**Security**		
	To ensure security, all systems shall:		
g.	Provide documentation of mandatory administrative procedures for effective system security.	*see Vol. I, Sec. 7 Security Requirements* *see Vol. II, 2.6 Software Security Specification*	Security Spec. V1.5 lists and User Guides include. Specific comments will be listed below as needed.
VI, 2.1.5	**System Audit**		
	Because the actual implementation of [system's] specific characteristics may vary from system to system, it is the responsibility of the vendor to describe each system's characteristics in sufficient detail so that test labs and system users can evaluate the adequacy of the system's audit trail. This description shall be incorporated in the System Operations Manual, which is part of the Technical Data Package.	*see Vol. II, 2.8.1 TDP, System Operations Procedures, Introduction*	BLM User Guide: answered in VVSG Vol. 2, Sec. 2.8.1

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VI, 2.1.6	**Election Management System**		
	The Election Management System (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:		
g.	Accumulate vote totals at multiple reporting levels as indicated in the system documentation.	*Vol. II, 2.8.4 System Operations Procedures, Operational Features*	Answered in VVSG Vol. 2, Sec. 2.8.4c
VI, 2.1.7	**Vote Tabulating Program**		
VI, 2.1.7.1	**Vote Tabulating Program, Functions**		
VI, 2.1.7.2	**Voting Variations**		
	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 supported:	*Vol. II, 2.1 Description of the Tech. Data Package, Scope*	Per **System Overview** Sec. 1.1.2 Voting Variations
	Closed primaries		Supported
	Open primaries		Supported
	Partisan offices		Supported
	Non-partisan offices		Supported
	Write-in voting		Supported
	Primary presidential delegation nominations		Supported
	Ballot rotation		Supported
	Straight party voting		Supported
	Cross-party endorsement		Not Supported
	Split precincts		Supported
	Vote for N of M		Supported
	Recall issues with options		Supported
	Cumulative voting		Not Supported
	Support of ranked order voting		Supported
	Provisional or challenged ballots		Supported
VI, 2.1.10	**Data Retention**		
	All systems shall maintain integrity of voting and audit data during an election and for at least 22 months thereafter.	*Vol. II, Sec. 2.3 System Functionality Description*	**Func. Desc**: Sec. 2.9 Data Retention (Election Materials and Results)

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VI, 2.2	**Pre-Voting Capabilities**		
VI, 2.2.1	**Ballot Preparation**		
VI, 2.2.1.1	**General Capabilities**		
	All systems shall provide the general capabilities for ballot preparation. All systems shall be capable of:		
c.	Supporting the maximum number of potentially active voting positions as indicated in the system documentation.	*Vol. II, 2.2.2a, System Performance*	System Overview Sec. 1.3.3 Design Constraints…
VI, 2.2.1.3	**Ballot Production**		
	Vendor documentation for mark sense 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).	*see also Vol. II, 2.9.4.2 TDP, System Maintenance Manual, Parts and Materials, Paper-based Systems* *Vol. I, 4.1.4.2 a-b, Vote Recording Requirements, Paper-based Systems*	**BPS** Sec. 2.2 OVO Acceptable Size, Weight, and Thickness; Sec. 3.1 OVO Acceptable Size, Weight, and Thickness; Sec. 4 OVI Ballot Slip Roll Spec.
VI, 2.2.3	**Ballot and Program Installation and Control**		
	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. All systems shall include the following at the time of ballot and program installation:		
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.	*see also Vol II, 2.8.5g. TDP, System Operation Procedures, Operating Procedures*	**Func. Desc**. Sec. 3.3.1 Detailed Work Plan – Schedule Steps; **System Overview** Sec. 2 Pre-Election
VI, Sec. 3	**Usability and Accessibility Requirements**		
3.1	**Usability Requirements**		
VI, 3.1.1	**Usability Testing**		
	The vendor shall conduct summative usability tests on the voting system using individuals representative of the general population. The vendor shall document the testing performed and report the test results using the Common Industry Format. This documentation shall be included in the Technical Data Package submitted to the EAC for national certification.	*Vol. II, 2.1.1 Description of the TDP, Required Content…*	ATTA Usability test report submitted with final QA report.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Discussion: Voting system vendors are required to conduct realistic usability tests on the final product. For the present, vendors can define their own testing protocols.	*EAC RFI 2007-03 dated 9/5/07: 2005 VVSG Vol. I Sec. 3.1.1*	ATTA Usability test report submitted with final QA report.
EAC RFI 2007-03 dated Sept. 5, 2007	**EAC Decision on Request for Interpretation 2007-03, 2005 VVSG Vol. I Section 3.1.1**		
	Per EAC RFI 2007-03, the question was asked whether the manufacturer is required to submit the summative usability testing report to the VSTL conducting the testing of the voting system, or to the EAC. The EAC conclusion: *" The EAC concludes that manufacturers must submit the summative usability test report required by Section 3.1.1 of the 2005 VVSG Vol. 1 to the VSTL for review. In addition, the usability test report shall be submitted to the EAC as part of the documentation manufacturers are required to file with the application to test a voting system.* (continued below)		ATTA Usability test report submitted with final QA report.
	(continued from above) *This interpretation is consistent with the intent of the requirement which was to ensure that the voting system meets the usability requirements of the 2005 VVSG. Consistent with the 2005 VVSG the manufacturer must submit the usability test report to the VSTL as part of the technical data package submitted to the laboratory. The VSTL will then check the technical data package to ensure that the report is present and reported in the common industry format. If the VSTL finds the usability test report to be inconsistent with the common industry format the VSTL shall note the discrepancy in its final report to the EAC".*		ATTA Usability test report submitted with final QA report.
VI, 3.2.2.1	**Partial Vision**		
a.	The vendor shall conduct summative usability tests on the voting system using partially sighted individuals. The vendor shall document the testing performed and report the test results using the Common Industry Format. This documentation shall be included in the Technical Data Package submitted to the EAC for national certification.	*Vol. II, 2.1.1 Description of the TDP, Required Content…*	ATTA Usability test report submitted with final QA report.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Discussion: Voting system vendors are required to conduct realistic usability tests on the final product. For the present, vendors can define their own testing protocols.		ATTA Usability test report submitted with final QA report.
VI, 3.2.2.2	**Blindness**		
	The vendor shall conduct summative usability tests on the voting system using individuals who are blind. The vendor shall document the testing performed and report the test results using the Common Industry Format. This documentation shall be included in the Technical Data Package submitted to the EAC for national certification.	*Vol. II, 2.1.1 Description of the TDP, Required Content…*	ATTA Usability test report submitted with final QA report.
	Discussion: Voting system vendors are required to conduct realistic usability tests on the final product. For the present, vendors can define their own testing protocols.		ATTA Usability test report submitted with final QA report.
c.	All voting stations that provide audio presentation of the ballot shall conform to the following requirements:		
c. iv.	A sanitized headphone or handset shall be made available to each voter.		**PW Guide:** Sec. 2.3 Items to Have Ready for Startup, Initialization, and Voting
	Discussion: this requirement can be achieved in various ways, including the use of "throwaway" headphones, or of sanitary coverings.		**PW Guide:** Sec. 2.3 Items to Have Ready for Startup, Initialization, and Voting
VI, 3.2.3	**Dexterity**		
a.	The vendor shall conduct summative usability tests on the voting system using individuals lacking fine motor control. The vendor shall document the testing performed and report the test results using the Common Industry Format. This documentation shall be included in the Technical Data Package submitted to the EAC for national certification.	*Vol. II, 2.1.1 Description of the TDP, Required Content…*	ATTA Usability test report submitted with final QA report.
	Discussion: Voting system vendors are required to conduct realistic usability tests on the final product. For the present, vendors can define their own testing protocols.		ATTA Usability test report submitted with final QA report.
VI, 4	**Hardware Requirements**		
VI, 4.1.2	**Environmental Requirements**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	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.	*also Vol. II, 2.4.1 TDP, System Hardware Characteristics*	Found: Environmental: Hdw Spec. V1.1 Sec. 2.2.6 and 3.2.6 PC Environmental Conditions; 2.3.4 and 3.3.4 and 3.4.7 Touch Screen Environmental Conditions; 2.4.5 Printer Environmental Conditions; 2.5.7 and 3.5.7 TM Environmental Conditions; 2.6.6 Scanner Environmental Conditions; 3.6.1.2 Keypad Environmental Specifications
VI, 4.1.3.2	**Memory Stability**		
	Memory devices used to retain election management data shall have demonstrated error-free data retention for a period of 22 months.	*Vol. II, 2.3 System Functionality Description*	Hard drive, TMs meet this requirement. Funct. Desc.: Sec. 2.9 Data Retention
VI, 4.1.4	**Vote Recording Requirements**		
VI, 4.1.4.2	**Paper Based Recording Requirements**		
a.iii.	The Technical Data Package shall specify the required paper stock, size, shape, opacity, color, watermarks, field layout, orientation, size and style of printing, size and location of 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.	*Vol. II, 2.9.4.2 TDP, System Maintenance Manual, Parts and Materials, Paper-based Systems also Vol. I, 2.2.1.3 Ballot Production*	**BPS**: Entire document
b.	The Technical Data Package shall specify marking devices, which, if used to make the prescribed form of mark, produce readable marked ballots such that the system meets the performance requirements for accuracy in Subsection 4.1.1. Marking devices can be either manual (such as pens or pencils) or electronic. These specifications shall identify:	*Vol. II, 2.9.4.2 TDP, System Maintenance Manual, Parts and Materials, Paper-based Systems also Vol. I, 2.2.1.3 Ballot Production*	**Maint. Spec.** Sec. 2.7.1 Hand Marking; Sec. 2.7.2 Electronic Marking
	i. Specific characteristics of marking devices that affect readability of marked ballots		**Maint. Spec.** Sec. 2.7.1 Hand Marking; Sec. 2.7.2 Electronic Marking
	ii. Performance capabilities with regard to each characteristic		**Maint. Spec.** Sec. 2.7.1 Hand Marking; Sec. 2.7.2 Electronic Marking
	iii. For marking devices manufactured by multiple external sources, a listing of sources and model numbers that are compatible with the system		**Maint. Spec.** Sec. 2.7.1 Hand Marking; Sec. 2.7.2 Electronic Marking

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
d.	Ballot boxes and ballot transfer boxes, which serve as secure containers for the storage and transportation of ballots, shall:		
	ii. Incorporate locks and seals, the specifications of which are described in the system documentation.	*also Vol. II, 2.9.4.2 TDP, System Maintenance Manual, Parts and Materials, Paper-based Systems*	**Hdw Spec** V1.1 Sec. 1.1.1 OVO
VI, 4.1.5	**Paper-based Conversion Requirements**		
VI, 4.1.5.1	**Ballot Handling**		
a.	Ballot handling consists of a ballot card's acceptance, movement through the read station, and transfer into a collection station or receptacle. 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 the capacity for individual components that impact the overall capacity.	*Vol. II, 2.2.2 System Performance*	**System Overview:** Sec. 1.3 System Performance
VI, 4.1.6	**Tabulation Processing Requirements**		
VI, 4.1.6.1	**Paper-based System Processing Requirements**		
b.	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).	*Vol. II, 2.3 System Functionality Description*	**Funct. Desc.:** Sec. 2.9 Data Retention (Election Materials and Results)
VI, 4.1.6.2	**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.		
c.	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.	*Vol. II, 2.3 System Functionality Description*	N/A for this system
VI, 4.1.7	**Reporting Requirements**		
VI, 4.1.7.1	**Removable Storage Media**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	In voting systems that use 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 Subsection 4.1.2. Examples of removable storage media include: programmable read-only memory (PROM), random access memory (RAM) with battery backup, magnetic media, or optical media.	*Vol. II, 2.3 System Functionality Description*	**Func. Desc:** Sec. 2.9 Data Retention (Election Materials and Results)
VI, 4.1.7.2	**Printers**		
	All printers used to produce reports of the vote count shall be capable of producing:	*Vol. II, 2.4 System Hardware*	
a.	Alphanumeric headers;		"Reports" sections of user guides – all are able to be printed.
b.	Election, office and issue labels; and		"Reports" sections of user guides – all are able to be printed.
c.	Alphanumeric entries generated as part of the audit record.		"Reports" sections of user guides – all are able to be printed.
VI, 4.2	**Physical Characteristics**	*also Vol II, 2.4.1 System Hardware Characteristics*	
VI, 4.2.1	**Size**		
	There is no numerical limitation on the size of any voting equipment, but the size of each voting should be compatible with its intended use and the location at which the equipment is to be used.	*Vol. II, 2.4 System Hardware*	**Fnct Spec** 2.4.1.4 Ballot Reader; Sec. 2.4.1.8 Touchscreen; **Hdw Spec** 2.1.1 OVO Case Specs; Sec. 3.1.1 OVI Case Specs
VI, 4.2.2	**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.	*Vol. II, 2.4 System Hardware*	**Hdw Spec**: Sec. 2.1.1 OVO Case Specifications
VI, 4.2.3	**Transport and Storage of Precinct Systems**		
	All precinct voting systems shall:		
b.	[precinct voting systems] Be capable of using, or be provided with, a protective enclosure rendering the equipment capable of withstanding:		
	ii. Stacking loads associated with storage.	*Vol. II, 2.4.1 b, System Hardware*	**Hdw Spec**: Sec. 1.2 Storage

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VI, 4.3	**Design, Construction, and Maintenance Characteristics**		
VI, 4.3.1	**Materials, Processes, and Parts**		
	All voting systems shall:		
b.	Include, as part of the accompanying TDP, an approved parts list.	*see Vol. II, 2.9.4.1 TDP, System Maintenance Manual, Parts and Materials…*	**Maint. Spec**. Sec. 3.3.3 Ordering More Paper refers to OVO Paper Spec.
VI, 4.3.2	**Durability**		
	All voting systems shall be designed to withstand normal use without deterioration and without excessive maintenance cost for a period of ten years.	*Vol. II, 2.4.1 System Hardware Design, System Hardware Characteristics; EAC RFI 2008-05 eff. Date 7/30/08: 2005 VVSG Vol. I Sec. 4.3.2 Durability*	Unisyn has submitted a statement of product compliance.
EAC RFI 2008-05, effective date July 30, 2008	**EAC Decision on Request for Interpretation 2008-05: 2005 VVSG Vol. I Section 4.3.2, Durability**		
	Per EAC RFI 2006-05: Question: How are the VSTLs expected to evaluate this requirement? Per EAC:"*…Until more research is done on this issue and clear scientific guidance is available, voting system manufacturers shall provide the VSTL with a signed statement of compliance for this standard. VSTLs should review the compliance statement and accept the statement unless VSTL engineering analysis and interaction with the system during the testing process would bring the durability of the system into question. In addition, additional review may be required in those instances where experience with fielded versions of the certified voting system show obvious problems related to the lack of durability*".		Unisyn has submitted a statement of product compliance.
VI, 4.3.5	**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 each function. The voting system shall meet the availability standard for each of the following voting functions:	*Vol. I, 2.2.2 b. System Performance; Vol. II, 2.9.5 a-c TDP, System Maintenance Manual, Maintenance Facilities and Support*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	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:		
e.	Recommended number and locations of spare devices or components to be kept on hand for repair purposes during periods of system operation.		**Maint. Spec.** Sec. 1.3.4 Recommended Inventory
f.	Recommended number and locations of qualified maintenance personnel who need to be available to support repair calls during system operation.		**Maint. Spec.:** Sec. 1.2 Technician Responsibilities
g.	Organizational affiliation (i.e., jurisdiction, vendor) of qualified maintenance personnel.		**Maint. Spec.:** Sec. 1.2 Technician Responsibilities
VI, 4.3.7	**Workmanship**		
	To help ensure proper workmanship, all manufacturers of voting systems shall:	*Vol. I, 8.2 QA Requirements, General Requirements; Vol. II, 2.12 Quality Assurance*	
a.	Adopt and adhere to practices and procedures to ensure that their products are free from damage or defect making them unsatisfactory for their intended purpose; and		QA Plan
b.	Ensure that components provided by external suppliers are free from damage or defect making them unsatisfactory for their intended purpose.	*Vol. II, 7.5 Examination of Quality Assurance Practices*	QA Plan
VI, Sec. 5	**Software Requirements**		
VI, 5.1.1	**Software Sources**		
	Configuration of software, both operating systems and applications, is critical to proper system functioning. ... Therefore, the vendors shall submit a record of all user selections made during software installation as part of the Technical Data Package.	*VII, 2.8.5, Operating Procedures*	**BLM UG** Sec. 1.2 Installing and Updating; Sec. 2.1 Replace the Default Superuser; throughout **EM UG**; Sec. 1.4 Installing and Updating; **ES UG** 1.6 Installing and Updating; Sec. 2 Election Loading; n/a for **OVCS UG**; **PW Guide** Sec. 2 Before Polls Open; **SS UG** Sec. 1 Introduction; Sec. 2 Software Loading; **TAB UG** Sec. 1 Introduction; Sec. 2 Using the Tabulator; n/a for **TC UG**; n/a for **TR UG**; n/a for **TRB Guide**; **WHT Guide** Sec. 1.6.1 Pre-Voting Equipment Preparation; Sec. 2 Starting Up and Shutting Down OVD Units; Sec. 3 OVD Software Overview; Sec. 4 Loading Updated

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Software on OVD Units; Sec. 5 Loading a New Election on OVD Units; Sec. 6 Testing the Voting Systems; Sec. 7 Preparing Poll Location Equipment (also answered in VVSG Vol. 2, Sec. 2.8.3 above)
	The vendor shall also submit a record of all configuration changes made to the software following its installation.		**BLM UG** Sec. 1.2 Installing and Updating; Sec. 2.1 Replace the Default Superuser; throughout **EM UG**; Sec. 1.4 Installing and Updating; **ES UG** 1.6 Installing and Updating; Sec. 2 Election Loading; n/a for **OVCS UG**; **PW Guide** Sec. 2 Before Polls Open; **SS UG** Sec. 1 Introduction; Sec. 2 Software Loading; **TAB UG** Sec. 1 Introduction; Sec. 2 Using the Tabulator; n/a for **TC UG**; n/a for **TR UG**; n/a for **TRB Guide**; **WHT Guide** Sec. 1.6.1 Pre-Voting Equipment Preparation; Sec. 2 Starting Up and Shutting Down OVD Units; Sec. 3 OVD Software Overview; Sec. 4 Loading Updated Software on OVD Units; Sec. 5 Loading a New Election on OVD Units; Sec. 6 Testing the Voting Systems; Sec. 7 Preparing Poll Location Equipment (also answered in VVSG Vol. 2, Sec. 2.8.3 above)
VI, 5.2.6	**Coding Conventions**		
	Voting system software shall adhere to basic coding conventions. The coding conventions used shall meet one of the following conditions:	*also Vol. II, 2.5.4 e. TDP, Software Design and Specification, Software Standards and Conventions*	
a.	The vendors shall identify the published, reviewed, and industry-accepted coding conventions used and the accredited test lab shall test for compliance.		**SW Spec**.: Sec. 4 Software Standards and Conventions
VI, 5.3	**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.	*Vol. II, Sec. 2.3 System Functionality Description*	**Funct. Desc**.: Sec. 2.9 Data Retention (Election Materials and Results)

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VI, Sec. 7	**Security Requirements**	*Vol. I, 2.1.1 Overall System, Security;* *Vol. II, 2.6 Security Specifications;* *Vol. I, Sec. 6 Telecommunications Requirements*	
VI, 7.2.1	**General Access Control Policy**		
	The vendor shall specify the general features and capabilities of the access control policy recommended to provide effective voting system security.	*also Vol. II, 2.6.1 TDP, System Security Specification, Access Control Policy*	**Sec. Spec**.: Sec. 1 Purpose and Scope; Sec. 2 Access Control Policy
	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:		
a.	Software access controls;		Security Spec. Sec. 7 Other Elecments of an Effective Security Program; Sec. 2.1.1 Software Access Controls
b.	Hardware access controls;		Security Spec Sec. 7 Other Elecments of an Effective Security Program; Sec. 2.1.2 Hardware Access Controls; Sec. 3.1.4 OVD Hardware Measures
c.	Communications;		Security Spec. Sec. 2.1.3 Communications
d.	Effective password management;		Security Spec. Sec. 2.1.4 Effective Password Management; Sec. 3.1.1.2 Operating System User Access; Sec. 3.1.6.1.1 [OCS] Password Policy; Sec. 3.1.6.1.2 Application Users
e.	Protection abilities of a particular operating system;		Security Spec. Sec. 2.1.5 Linux Protections
f.	General characteristics of supervisory access privileges;		Security Spec. Sec. 2.1.6 Supervisory Access Privileges
g.	Segregation of duties; and		Security Spec. Sec. 2.1.7 Segregation of Duties
h.	Any additional relevant characteristics.		Security Spec. Sec. 2 Access Control Policy
VI, 7.2.1.1	**Individual Access Privileges**		
	Voting system vendors shall:	*also Vol. II, 2.6.1 TDP, System Security Specification, Access Control Policy*	
a.	a. Identify each person to whom access is granted, and the specific functions and data to which each person holds authorized access.		Security Spec. Sec. 2.1.7 Segregation of Duties; Sec. 2.2 Individual Access Privileges

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
b.	b. Specify whether an individual's authorization is limited to a specific time, time interval, or phase of the voting or counting operations.		Security Spec. Sec. 2.1.7 Segregation of Duties; Sec. 2.2 Individual Access Privileges
c.	c. Permit the voter to cast a ballot expeditiously, but preclude voter access to all aspects of the vote counting process.		Security Spec. Sec. 3.1.13.3 Voters
VI, 7.2.1.2	**Access Control Measures**	*Vol. II, 2.6.2 TDP, System Security Specification, 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.		Security Spec. V1.5, Sec. 3 Access Control Measures [entire section]; other sections listed in a. thru h. below
	Examples of such measures include:		
a.	Use of data and user authorization		Security Spec. V1.5, Sec. 3 Access Control Measures [entire section]
b.	Program unit ownership and other regional boundaries		Security Spec. V1.5, Sec. 3 Access Control Measures [entire section]
c.	One-end or two-end port protection devices		Security Spec. V1.5, Sec. 3 Access Control Measures [entire section]
d.	Security kernels		Security Spec. V1.5, Sec. 3 Access Control Measures [entire section]
e.	Computer-generated password keys		Security Spec. Sec. Dynamically generated passwords: Sec. 2.1.4 Effective Password Management, Sec. 3.1.7 Election Users; Sec. 3.1.8 Database Security, and other sections through document.
f.	Special protocols		Security Spec. Sec. 3 Access Control Measures [entire section]
g.	Message encryption		Security Spec. Sec. 1.2 Elements of the System: RegKeyUtilities; 2.1.1 Software Access Controls: AES key for each location; Sec. 3.1.2.2 SHA 256 hash-generated key; Sec. 3.1.24 File Encryption [entire section]
h.	Controlled access security		Security Spec. Sec. 3 Access Control Measures [entire section]
	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.		Security Spec. Sec. 3 Access Control Measures [entire section]
VI, 7.3	**Physical Security Measures**		

60

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Security procedures shall address physical threats and the corresponding means to defeat them.	*Vol. II, 2.6.3 TDP, System Security Specification, Equipment and Data Security*	
VI, 7.3.1	**Polling Place Security**		
	For polling place operations, vendors shall develop and provide detailed documentation of measures to enable poll workers to physically protect and perform orderly shutdown of voting equipment to counteract vandalism, civil disobedience, and similar occurrences.	*Vol. II, 2.6.3 Equipment and Data Security*	Security Spec. Sec. 4.2 Polling Place Security [entire section, particularly Sec. 4.2.5 Emergency Procedures]; Sec. 7.4 Physical Facilities, Polling Place Security
	The measures shall allow the immediate detection of tampering with vote casting devices and precinct ballot counters.		Security Spec. Sec. 4.2 Polling Place Security [entire section, particularly Sec. 4.2.5 Emergency Procedures]; Sec. 7.4 Physical Facilities, Polling Place Security
	They shall also control physical access to a telecommunications link if such a link is used.		Security Spec. Sec. 6 Telecommunications and Data Transmission Security state no public networks are used.
VI, 7.3.2	**Central Count Location Security**		
	Vendors shall develop and document in detail the 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.	*Vol. II, 2.6.3 Equipment and Data Security*	Security Spec. Sec. 4.3 Central Count Location Security [entire section]; Sec. 4.2.2 Voting Security Procedures; Sec. 7.4 Physical Facilities; Sec. 4.2.4 voting Day Delivery Procedures
VI, 7.4	**Software Security**		
	Voting systems shall meet specific security requirements for the installation and for protection against malicious software.	*Vol.II, 2.6.4 TDP, System Security Specification, Software Installation*	
VI, 7.4.1	**Software and Firmware Installation**		
	The system shall meet the following requirements for installation of software, including hardware with embedded firmware.	*also Vol.II, 2.6.4 TDP, System Security Specification, Software Installation*	
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.		Security Spec. Sec. 5.3 Validation and Verification

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
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.		Security Spec. Sec. 5.3 Validation and Verification
VI, 7.4.2	**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 follow to ensure that such protection against is maintained in a current status.	*Vol. II, 2.6.4 TDP, System Security Specification, Software Installation*	Security Spec. Sec. 5.2 Protection Against Malicious Software
VI, 7.4.3	**Software Distribution and Setup Validation**		
	Voting system software is considered to be all executable code and associated configuration files critical for proper operation of the voting system regardless of the location of installation and functionality provided. This includes third party software such as operating systems, drivers, and database management systems.	*Vol.II, 2.6.4 TDP, System Security Specification, Software Installation*	
VI, 7.4.4	**Software Distribution**		
a.	The vendor shall document all software including voting system software, third party software (such as operating systems and drivers) to be installed on the certified voting system, and installation programs.	*Vol. II, 2.6.4 TDP, System Security Specification, Software Installation*	Security Spec. Sec. 5.3 Validation and Verification
	i. The documentation shall have a unique identifier (such as a serial number or part number) for the following set of information: documentation, software vendor name, product name, version, the certification application number of the voting system, file names and paths or other location information (such as storage addresses) of the software.	*Vol. II, 2.6.4 TDP, System Security Specification, Software Installation*	Security Spec. Sec. 5.3 Validation and Verification
	ii. The documentation shall designate all software files as static, semi-static, or dynamic.	*Vol. I, 2.6.4 TDP, System Security Specification, Software Installation*	Security Spec. Sec. 5.3 Validation and Verification

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Discussion: Static voting system software such as executable code does not change based on the election being conducted or the voting equipment upon which it is installed. Semi-static voting system software contains configuration information for the voting system based on the voting equipment that is installed and the election being conducted. Semi-static software is only modified during the installation of (a) the voting system software on voting equipment or (b) the election-specific software such as ballot formats. Dynamic voting system software changes over time once installed on voting equipment. However, the specific time or value of the change in the dynamic software is usually unknown in advance, making it impossible to create reference information to verity the software.		Security Spec. Sec. 5.3 Validation and Verification
VI, 7.4.6	**Software Setup Validation**		
b.	The vendor shall have a process to verify that the correct software is loaded, that there is no unauthorized software, and that voting system software on voting equipment has not been modified, using the reference information from the NSRL or from a State designated repository.	*Vol. II, 2.6.4 TDP, System Security Specification, Software Installation*	Security Spec. Sec. 5.3 Validation and Verification
	ii. The vendor shall document the process used to verify software on voting equipment.		Security Spec. Sec. 5.3 Validation and Verification
f.	Setup validation methods shall verify that registers and variables of the voting system equipment contain the proper static and initial values.		Security Spec. Sec. 5.3 Validation and Verification
	ii. The vendor shall document the values of all static registers and variables, and the initial starting values of all dynamic registers and variables listed for voting system software, except for the values set to conduct a specific election.		Security Spec. Sec. 5.3 Validation and Verification
VI, 7.5	**Telecommunications and Data Transmission**		
VI, 7.5.2	**Protection Against External Threats**		
a.	Voting systems that use public telecommunications networks shall implement protections against external threats to which commercial products used in the system may be susceptible.	*Vol. II, 2.6.5 Telecommunications and Data Transmission Security*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
b.	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.	*Vol. II, 2.6.5 TDP, System Security Specification, Telecommunications and Data Transmission Security; Vol. II, 2.2.1 e. System Description*	Security Spec. Sec. 6 Telecommunications and Data Transmission Security state no public communications network is used. Only 2 locations within the OCS use data transfer network, all on a private LAN; all communications are encrypted.
	i. Such documentation shall identify the name, vendor, and version used for each such component.		n/a
VI, 7.5.3	**Monitoring and Responding to External Threats**		
	Therefore, vendors of such [voting systems that use public telecommunications] 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:	*also Vol. II, 2.6.5 TDP, System Security Specification, Telecommunications and Data Transmission Security*	
a.	Monitor threats, such as through the review of assessments, advisories, and alerts for COTS components issued by the Computer Emergency Response Team (CERT), the National Infrastructure Protection Center (NIPC), and the Federal Computer Incident Response Capability (FedCIRC);		n/a
b.	Evaluate the threats and, if any, proposed responses;		n/a
c.	Develop responsive updates to the system and/or corrective procedures;		n/a
d.	Submit the proposed response to test labs and appropriate states for approval, identifying the exact changes and whether or not they are temporary or permanent;		n/a
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.		n/a

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
f.	Address threats emerging too late to correct the system by:		
	i. Providing prompt, emergency notification to the accredited test labs and the affected states and user jurisdictions;		n/a
	ii. Assisting client jurisdictions directly, or advising them through detailed written procedures, to disable the public telecommunications mode of the system; and		n/a
	iii. Modifying the system after the election to address the threat, submitting the modified system to an accredited test lab and the EAC or appropriate 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.		n/a
VI, 7.6	**Use of Public Communications Networks**		
VI, 7.6.2	**Casting Individual Ballots**		
VI, 7.6.2.1	**Documentation of Mandatory Security Activities**		
	Vendors of voting systems that cast individual ballots over a public telecommunications network shall provide detailed descriptions of:	*Vol. II, 2.6.5 TDP, System Security Specification, Telecommunications and Data Transmission Security*	
a.	All activities mandatory to ensuring effective system security to be performed in setting up the system for operation, including testing of security before an election.		Security Spec. Sec. 6 Telecommunications and Data Transmission Security state no public communications network is used.
b.	All activities that should be prohibited during system setup and during the time frame for voting operations, including both the hours when polls are open and when polls are closed.		n/a
VI, 7.7	**Wireless Communications**		
	Wireless is defined as any means of communications that occurs without wires. This normally covers the entire electromagnetic spectrum. For the purposes of this section, wireless includes radio frequency, infrared, and microwave.		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
VI, 7.7.1	**Controlling Usage**	*see also Vol. II, 2.6.5 TDP, System Security Specification, Telecommunications and Data Transmission Security*	
a.	If wireless communications are used in a voting system, then the vendor shall supply documentation describing how to use all aspects of wireless communications in a secure manner. This documentation shall include:		n/a: wireless communication not used
	i. A complete description of the uses of wireless in the voting system including descriptions of the data elements and signals that are to be carried by the wireless mechanism.		n/a
	ii. A complete description of the vulnerabilities associated with this proposed use of wireless, including vulnerabilities deriving from the insertion, deletion, modification, capture, or suppression of wireless messages.		n/a
	iii. A complete description of the techniques used to mitigate the risks associated with the described vulnerabilities including techniques used by the vendor to ensure that wireless cannot send or receive messages other than those situations specified in the documentation. Cryptographic techniques shall be carefully and fully described, including a description of cryptographic key generation, management, use, certification, and destruction.		n/a
	iv. A rationale for the inclusion of wireless in the proposed voting system, based on a careful and complete description of the perceived advantages and disadvantages of using wireless for the documented uses compared to using non-wireless approaches.		n/a
	iv. Discussion: In general, convenience is not a sufficiently compelling reason, on its own, to justify the inclusion of wireless communications in a voting system. Convenience must be balanced against the difficulty of working with cryptographic keys.		n/a
b.	The details of all cryptographic protocols used for wireless communications, including the specific features and data, shall be documented.		n/a

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
e.	If a voting system includes wireless capabilities, then the voting system shall be able to accomplish the same function if wireless capabilities are not available due to an error or no service.		n/a
	i. The vendor shall provide documentation how to accomplish these functions when wireless is not available.		n/a
VI, 7.7.2	**Identifying Usage**		
	If a voting system provides wireless capabilities, then the type of wireless communications used (such as radio frequencies) shall be identified either via a label or via the voting system documentation.	*see also Vol. II, 2.6.5 TDP, System Security Specification, Telecommunications and Data Transmission Security*	n/a
VI, 7.9	**Voter Verifiable Paper Audit Trail Requirements**		
	VVPAT is not required for national certification. However, these requirements will be applied for certification testing of DRE systems that are intended for use in states that require DREs to provide this capability.		
VI, 7.9.2	**Voter Verifiable Paper Audit Trail Requirements, Approve or Void the Paper Record**		
e.	Vendor documentation shall include procedures to enable the election official to return a voting machine to correct operation after a voter has used it incompletely or incorrectly. **This procedure shall not cause discrepancies between the tallies of the electronic and paper records.**	*Vol. II, 2.3 System Functionality Description*	not a feature of the Unisyn OVS at this time.
VI, 7.9.3	**Voter Verifiable Paper Audit Trail Requirements, Electronic and Paper Record Structure**		
e.	iii. The voting system vendor shall provide documentation as to the structure of the exported ballot image records and how they shall be read and processed by software.	*Vol. II, 2.7.2e, National Certification Test Specifications*	n/a
e.	v. The voting system vendor shall provide full documentation of procedures for exporting electronic ballot image records and reconciling those records with the paper audit records.	*Vol. II, 2.2.2 b. System Performance*	n/a
VI, 7.9.4	**Equipment Security and Reliability**	*Vol. II, 2.2.2 b. System Performance*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
k.	Vendor documentation shall include procedures for investigating and resolving printer malfunctions including, but not limited to; printer operations, misreporting of votes, unreadable paper records, and power failures.		n/a
l.	Vendor documentation shall include printer reliability specifications including Mean Time Between Failure estimates, and shall include recommendations for appropriate quantities of backup printers and supplies.		n/a
VI, Sec. 8	**Quality Assurance Requirements**		
VI, 8.1	**Scope**		
VI, 8.2	**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 are achieved in all delivered systems and components. At a minimum this program shall:	*also Vol. II, 2.12 TDP, Quality Assurance Program;* *also Vol. II, 7.5 Examination of Quality Assurance Practices*	
a.	Include procedures for specifying, procuring, inspecting, accepting, and controlling parts and raw materials of the requisite quality;		**QA Plan** Sec. 3 Parts and Materials Examinations
b.	Require the documentation of the hardware and software development process;		QA Plan: Sec. 1 Introduction; Sec. 1.2 Software QA Product Process/ ILTS ISO docs
c.	Identify and enforce all requirements for:		
	i. In-process inspection and testing that the manufacturer deems necessary to ensure proper fabrication and assembly of hardware		QA Plan: Sec. 3 Parts and Materials Examinations/ILTS ISO docs
	ii. Installation and operation of software and firmware		QA Plan: Sec. 5 Software Build Deployment to QA
d.	Include plans and procedures for post-production environmental screening and acceptance testing		QA Plan: Sec. 3 Parts and Materials Examinations/ILTS ISO docs
e.	Include a procedure for maintaining all data and records required to document and verify the quality inspections and tests.		QA Plan: Sec. 4 Documentation
VI, 8.3	**Components from Third Parties**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	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.	*Vol. II, 2.12 Quality Assurance*	**QA Plan** Sec. 3 parts and Materials Examination
VI, 8.5	**Parts and Materials Special Tests and Examinations**		
	In order to ensure that voting system parts and materials function properly, vendors shall:	*also Vol. II, 2.12 .2, Quality Assurance Program, Parts and Materials Tests;* *Vol. II, 7.5.2 Parts and Materials Tests*	
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.		**QA Plan** Sec. 3 Parts and Materials Examinations;
b.	Design special tests, if needed, to evaluate the part or material under conditions accurately simulating the actual voting system operating environment.		**QA Plan** Sec. 3 Parts and Materials Examinations
c.	Maintain the resulting test data as part of the quality assurance program documentation.		**QA Plan** Sec. 3 Parts and Materials Examinations
VI, 8.6	**Quality Conformance Inspections**		
	The vendor performs conformance inspections to ensure the overall quality of the voting system and components delivered to the test lab for national certification testing and to the jurisdiction for implementation. To meet the conformance inspection requirements, the vendor or manufacturer shall:	*see Vol. II, 2.12.3, Quality Assurance Program, Quality Conformance Inspections;* *Vol. II, 7.5.3 Quality Conformance Inspections*	
a.	Inspect and test each voting system or component to verify that it meets all inspection and test requirements for the system.		Test Cases and Final QA Report
b.	Deliver a record of tests or a certificate of satisfactory completion with each system or component		Test Cases and Final QA Report
VI, 8.7	**Documentation**		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	Vendors are required to produce documentation to support the independent testing required for their products to be granted national certification. Volume II, Section 2, Description of the Technical Data Package (TDP) required for the national certification testing process. This documentation shall be sufficient to serve the needs of the test lab, election officials, and maintenance technicians. It shall include, at a minimum, the following:	*Vol. II, 2.1.1.1 TDP, Scope, Required Content for Initial Certification;* *Vol. II, 2.1.1.2 Required Content for System Changes and Recertification;* *Vol. II, 2.12.4 Quality Assurance Program, Documentation;* *Vol. II, 7.5.4 Quality Assurance, Documentation*	
	System overview		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System functionality description		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System hardware specification		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	Software design and specifications		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System security specification		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System test and verification specification		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System operations procedures		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System maintenance procedures		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	Personnel deployment and training requirements		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	Configuration management plan		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	Quality assurance program		QA Plan: listed in Sec. 4.2 Technical Data Package Deliverables as a deliverable. See separate TDP review results.
	System change notes		QA Plan: listed in Sec. 4.2 Technical Data Package

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			Deliverables as a deliverable. See separate TDP review results.
VI, Sec. 9	**Configuration Management Requirements**	*see Vol. II, 2.11 TDP, Configuration Management Plan*	
VI, 9.1	**Scope**		
	This section contains specific requirements for configuration management of voting systems. Vendors are required to submit these procedures as part of the Technical Data Package for system certification.		
VI, 9.1.1	**Configuration Management Requirements**		
	Configuration management addresses a broad set of record keeping, auditing, and reporting activities that contribute to full knowledge and control of a system and its components. These activities include:	*Vol. II, 2.11 TDP, Configuration Management Plan*	
	Identifying discrete system components.		**CM Plan**: Sec. 3 Configuration Identification
	Creating records of a formal baseline and later versions of components.		**CM Plan**: Sec. 4 Baseline and Promotion
	Controlling changes made to the system and its components.		**CM Plan**: Sec. 5 Configuration Control Procedures; Sec. 6 Release Process
	Releasing new versions of the system.		**CM Plan**: Sec. 6 Release Process
	Auditing the system, including its documentation, against configuration management records.		**CM Plan** Sec. 7 Configuration Audits
	Controlling interfaces to other systems.		**CM Plan**: n/a: OVS does not interface with other systems
	Identifying tools used to build and maintain the system.		**CM Plan**: Sec. 8 Configuration Management Resources
VI, 9.1.3	**Application of Configuration Management Requirements**		
	Requirements for configuration management apply to all components of voting systems regardless of the specific technologies employed. These components include:	*Vol. II, 2.11 TDP, Configuration Management Plan*	
	Software		**CM Plan**: Sec. 5.2.2 Software Components; Sec. 6 Release Process
	Hardware		**CM Plan**: Sec. 5.2.1 Hardware Components; Sec. 6 Release Process
	Communications		**CM Plan**: Sec. 2 Configuration Management Policy states Communications generally handled as part of the Linux operating

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
			system and Software Config. Management
	Documentation		**CM Plan**: Sec. 5.3 Documentation Procedures
	Identification and naming and conventions (including changes to these conventions) for software programs and data files;		**CM Plan**: Sec. 3 Configuration Identification
	Development and testing artifacts such as test data and scripts		**CM Plan**: Sec. 5 Configuration Control Procedures
	File archiving and data repositories.		**CM Plan**: Sec. 5.1 Configuration Control Tools lists all tools used for file archiving and data repositories
VI, 9.2	**Configuration Management Policy**		
	The vendor shall describe its policies for configuration management in the Technical Data Package. This description shall address the following elements:	*Vol. II, 2.11.1 TDP, Configuration Management Plan, Configuration Management Policy;* *Vol. II, 7.4.1 Configuration Management Policy*	
	Scope and nature of configuration management program activities		**CM Plan** Sec. 1 Introduction
	Breadth of 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 policies and practices of suppliers apply to particular components, subsystems or other defined system elements		**CM Plan** Sec. 2 Configuration Management Policy has been added to explain the ILTS ISO program and how the asociated Unisyn CM procedures for the voting system apply
VI, 9.3	**Configuration Identification**		
	Configuration identification is the process of identifying, naming, and acquiring configuration items. Configuration identification encompasses all system components.		
VI, 9.3.1	**Structuring and Naming Configuration Items**		
	The vendor shall describe the procedures and conventions used to classify configuration items into categories and subcategories, uniquely number or otherwise identify items and name configuration items.	*Vol. II, 2.11.2 TDP, Configuration Identification;* *Vol. II, 7.4.2 Configuration Identification*	**CM Plan** Sec. 3 Configuration Identification
VI, 9.3.2	**Version Conventions**		
	When a system component is part of a higher level system element such as a subsystem, the vendor shall describe the conventions used to:	*Vol. II, 2.11.2 TDP, Configuration Identification;* *Vol. II 7.4.2 Configuration Identification*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
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;		**CM Plan** Sec. 8 Configuration Management Resources lists all CM tools and functions; Sec. 5.3 Documentation Procedures and Sec. 7.1.5 SW Documentation list the subcategories of documentation.; Sec. 5 Configuration Control Procedures; Sec. 2 Configuration Management Policy states communications are in general handled as part of the Linux operating system and Software CM
b.	Uniquely number or otherwise identify versions; and		**CM Plan** Sec. 3 Configuration Identification
c.	Name versions.		**CM Plan** Sec. 3 Configuration Identification includes software, hardware, and documentation identification. Sec. 2 Configuration Management Policy states Communications generally handled as part of the Linux operating system and Software Config. Management. Sec. 5.1 Configuration Control Tools discusses tracking tools.
VI, 9.4	**Baseline and Promotion Procedures**		
	The vendor shall establish formal procedures and conventions for establishing and providing a complete description of the procedures and related conventions used to:	*Vol. II, 2.11.3 TDP, Configuration Management Plan, Baseline and Promotion; Vol. II, 7.4.3 Baseline, Promotion, and Demotion Procedures*	
a.	Establish a particular instance of a component as the starting baseline;		**CM Plan** Sec4 Baseline and Promotion
b.	Promote subsequent instances of a component to baseline status as development progresses through to completion of the initial completed version released to accredited test lab for qualification testing; and		**CM Plan** Sec4 Baseline and Promotion
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).		**CM Plan** Sec4 Baseline and Promotion
VI, 9.5	**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:	*Vol. II, 2.11.4 TDP, Configuration Management Plan, Configuration Control Procedures; Vol. II, 7.4.4 Configuration Control Procedures*	

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
a.	Develop and maintain internally developed items;		**CM Plan** Sec. 5.2 Developing and Maintaining Internally Developed Items
b.	Acquire and maintain third-party items;		**CM Plan** Sec. 5.5 Maintaining Third Party Items
c.	Resolve internally identified defects for items regardless of their origin; and		**CM Plan** Sec. 5.9 Internal Modification Requests
d.	Resolve externally identified and reported defects (i.e., by customers and accredited test labs).		**CM Plan** Sec. 5.4 Customer Modification Request. Also more information is in QA Plan V1.6, Sec. 8 Quality Support/ Customer Responsiveness
VI, 9.6	**Release Process**		
	The release process is the means by which the vendor installs, transfers, or migrates the system to the accredited test lab and, eventually, to its customers. The vendor shall establish such procedures and related conventions, providing a complete description of those used to:	*Vol. II, 2.11.5 TDP, Configuration Management Plan, Release Process;* *Vol. II, 7.4.5 Release Process*	
a.	Perform a first release of the system to an accredited test lab;		**CM Plan** Sec. 7.1 Product Release
b.	Perform a subsequent maintenance or upgrade release of the system, or a particular components, to an accredited test lab;		**CM Plan** Sec. 7.4.1 Release Notes
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 version		**CM Plan** Sec. 6 Release Process
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.		**CM Plan** Sec. 6 Release Process
VI, 9.7	**Configuration Audits**		
VI, 9.7.1	**Configuration Audits, Physical Configuration Audit**		
	The Physical Configuration Audit is conducted by the accredited test lab to compare the voting system components submitted for certification to the vendor's technical documentation. For the PCA, a vendor shall provide:	*Vol. II, 2.11.6 TDP, Configuration Management Plan, Configuration Audits;* *Vol. II, 6.6 System Integration Testing, Physical Configuration Audit;* *Vol. II, 7.4.6 Configuration Audits*	
a.	Identification of all items that are to be a part of the software release		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
b.	Specification of compiler (or choice of compilers) to be used to generate executable programs	*see Vol. II, 2.5.5.2 Software Environment*	presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
c.	Identification of all hardware that interfaces with the software		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
d.	Configuration baseline data for all hardware that is unique to the system		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
e.	Copies of all software documentation intended for distribution to users, including program listings, specifications, operations manual, voter manual, and maintenance manual		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
f.	User acceptance test procedures and acceptance criteria		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
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		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
h.	Complete descriptions of its procedures and related conventions used to support this audit by:		
	i. Establishing a configuration baseline of the software and hardware to be tested		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
	ii. Confirming whether the system documentation matches the corresponding system components		presented during PCA conducted by Wyle. Any comments or anomalies were resolved and documented during the PCA.
VI, 9.7.2	**Configuration Audits, Functional Configuration Audit**		
	The Functional Configuration Audit is conducted by the accredited test lab to verify that the system performs all the functions described in the system documentation. The vendor shall:	*Vol. II, 2.11.6 TDP, Configuration Management Plan, Configuration Audits; Vol. II, 6.7 System Integration Testing, Functional Configuration Audit; Vol. II, 7.4.6 Configuration Audits*	
a.	Completely describe its procedures and related conventions used to support this audit for all system components		presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the FCA.
b.	Provide the following information to support this audit:		

Volume	VVSG Requirement	Corresponding VVSG requirement(s) reference	Location(s) where verified is located/comments by Wyle
	i. Copies of all procedures used for module or unit testing, integration testing, and system testing		presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the FCA.
	ii. Copies of all test cases generated for each module and integration test, and sample ballot formats or other test cases used for system tests		presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the FCA.
	iii. Records of all tests performed by the procedures listed above, including error corrections and retests		presented during FCA conducted by Wyle. Any comments or anomalies were resolved and documented during the FCA.
VI, 9.8	**Configuration Management Resources**		
	Vendors may choose the specific [automated] tools they use to perform the record keeping, auditing, and reporting activities of the configuration management standards. The resources documentation requirements 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 proved a complete description of procedures and related practices to maintaining information about:	*Vol. II, 2.11.7 TDP, Configuration Management Plan, Configuration Management Resources; VII 7.4.7 Configuration Management Resources*	
a.	Specific tools used, current version, and operating environment;		**CM Plan** CM tools are now listed in Sec. 8 Configuration Management Resources
b.	Physical location of the tools, including designation of computer directories and files; and		**CM Plan** Sec. 8 Configuration Management Resources
c.	Procedures and training materials for using the tools.		**CM Plan** Sec. 8 Configuration Management Resources