

New York State Board of Elections Voting System Verification Testing

ES&S EVS 6.3.0.1 Master Test Report v3.0

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Prepared for:



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1 INTRODUCTION

1.1 Project Overview

The New York State Board of Elections (NYSBOE) requires that before any voting system may be eligible to be purchased in New York State (NYS), it must be certified by the NYSBOE that such system(s) meet the requirements of the NYS 2022 Election Law, Section 6209 of Subtitle V of Title 9 of the Official Compilation of Codes, Rules and Regulations of the State of New York, and the federal 2005 Voluntary Voting System Guidelines (VVSG), Volumes 1 and 2.

SLI Compliance has been engaged by the NYSBOE to provide verification testing services to support the process of voting system certification by the NYSBOE.

1.2 Purpose

The purpose of this Final Master Test Report (defined as Deliverable 10: Final Master Test Report) is to create documentation of the testing that SLI Compliance, as NYSBOE’s Independent Test Authority (ITA), performed throughout the course of voting system verification testing.

1.3 References

The following key documents were used in preparing this test plan.

1. SLI VSTL Quality System Manual, v 3.0, February 13, 2019.
2. Voluntary Voting System Guidelines (2005 VVSG)
3. NYS 2022 Election Law
4. NYS 6209 Regulations

1.4 Terms and Abbreviations

The following terms and abbreviations were used throughout this document:

Table 1 – Terms and Abbreviations

Term	Abbreviation	Definition
Ballot Marking Device	BMD	An accessible computer-based voting system that produces a marked ballot (usually paper) that is the result of voter interaction with visual or audio prompts.
Commercial Off the Shelf Software	COTS	Computer software that is ready-made and available for sale, lease, or license to the general public
Direct Recording Electronic	DRE	Voting systems that, using Touch Screen or other user interfaces, directly record the voter’s selections in each race or contest on the ballot in electronic form.



Term	Abbreviation	Definition
Election Assistance Commission	EAC	An independent, bipartisan commission created by the Help America Vote Act (HAVA) of 2002 that operates the federal government's voting system certification program.
Election Management System	EMS	Typically, a database management system used to enter jurisdiction information (district, precincts, languages, etc.) as well as election specific information (races, candidates, voter groups (parties), etc.). In addition, the EMS is also used to layout the ballots, download the election data to the voting devices, upload the results and produce the final results reports.
Functional Configuration Audit	FCA	The testing activities associated with the Functional testing of the system
Independent Test Authority	ITA	This is a test lab that is not connected with the vendor or manufacturer of the voting system.
Institute of Electrical and Electronics Engineers	IEEE	A non-profit organization, IEEE is the world's leading professional association for the advancement of technology.
National Institute of Standards and Technology	NIST	NIST is a non-regulatory federal agency within the U.S. Dept. of Commerce. Its mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.
National Voluntary Laboratory Accreditation Program	NVLAP	A division of NIST that provides third-party accreditation to testing and calibration laboratories.
New York State	NYS	Acronym for the State of New York
New York State Board Of Elections	NYSBOE	The New York State Board of Elections is a bipartisan agency vested with the responsibility for administration and enforcement of all laws relating to elections in New York State.
New York State Technology Enterprise Corporation	NYSTEC	NYSTEC is a private, not-for-profit engineering company with offices in the state of New York. It acts as a trusted technology advisor to government agencies and private institutions.
Physical Configuration Audit	PCA	The testing activities associated with the physical aspects of the system (hardware, documentation, builds, source code, etc.)

Term	Abbreviation	Definition
Request For Information (form)	RFI	A form used by testing laboratories to request, from the NYSBOE, interpretation of a technical issue related to testing of voting systems.
Requirements Matrix	N/A	This is the matrix created by and maintained by SLI Compliance that traces the requirements to the various test cases, test steps, and test methods.
Technical Data Package	TDP	This is the data package that is supplied by the vendor and includes: Functional Requirements, Specifications, End-user documentation, Procedures, System Overview, Configuration Management Plan, Quality Assurance Program, and manuals for each of the required hardware, software, firmware components of each voting system.
Voluntary Voting Systems Guidelines Volumes 1 & 2	VVSG	A set of specifications and requirements against which voting systems can be tested to determine if the systems provide all of the basic functionality, accessibility and security capabilities required of these systems.
Voting System Test Lab	VSTL	This is a designation for a test lab that is accredited by the Election Assistance Commission.
Voting System Under Test	VSUT	The designation for a voting system that is currently being tested.

1.5 Scope of Testing

SLI Compliance provided verification testing on the EVS 6.3.0.1 system identified by the NYSBOE based on the guidelines and test approach established for voting system verification testing as defined by the NYSBOE (please see section 1.6 – Approved Project Testing Approach).

This effort included the testing required to demonstrate testing of EVS 6.3.0.1 against all the applicable requirements of the 2005 VVSG and NYS laws and regulations, as specified in the project Requirements matrix (Attachment A – ES&S EVS 6.3.0.1 NYS System Requirements Matrix w Test Cases).

For the voting system identified for verification, Voting System Specific Test Reports (defined as Deliverable 9: Voting System Specific Test Reports) were developed by SLI Compliance to address the areas of Source Code Review, Security Source Code Review, Functional Testing and Security Functional Testing.



1.6 Approved Project Testing Approach

Per the testing approach approved for the ES&S EVS 6.3.0.1 project, by NYSBOE (see “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022”), the following details dictated the approach of the project:

“

Based on review/approval by NYSBOE/NYSTEC:

- All previous EAC source code review to VVSG requirements will be accepted as a first round of review.
- All previous EAC functional testing to SHALL VVSG requirements will be accepted and leveraged.
- All previous EAC security testing to SHALL VVSG requirements will be accepted and leveraged.
- All previous EAC hardware testing to SHALL VVSG requirements will be accepted and leveraged.

A secondary source code review to VVSG requirements will be conducted by SLI Compliance.

- A 10% sample review will be conducted against all VVSG SCR requirements and will include:
 - a manual review to higher risk VVSG requirements.
 - a run of automated tool against all applicable VVSG requirements.
- A diff will be conducted and all source code changes not included in EAC certification, will be reviewed at 100%.
- Source code changes will be compared to the Change Notes to attempt to detect unidentified changes.
- A full source code review will be done against NYSBOE requirements.

A trusted build/s will be conducted by SLI Compliance, if needed.

Security testing will be conducted by SLI Compliance to include the following:

- Error messaging and Auditing will be tested against the VVSG
- A full security test will be done against NYSBOE requirements

Functional testing will be conducted by SLI Compliance to include the following:

- An end-to-end test will be conducted to verify the build and to attempt to detect unidentified changes.
- All functional testing of applicable SHOULD VVSG requirements will be tested as SHALL, as needed.
- All functional changes not included in EAC certification, will be tested along with any testing deemed necessary to confirm that the changes didn't affect other areas or cause issues around the changes made.
- Conduct upgrade testing and identify issues found.

Documentation review will be conducted by SLI Compliance to include the following:

- A diff will be conducted and all documentation changes not included in the EAC certification, will be reviewed at 100%.
- Documentation changes will be compared to the Change Notes to attempt to detect unidentified changes.

“

1.7 Final Master Test Report Attachments

The following attachment(s) are an integral part of this Final Master Test Report:

- Attachment A – ES&S EVS 6.3.0.1 NYS System Requirements Matrix w Test Cases
- Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022
- Attachment C – NYS ES&S EVS 6.3.0.1 Master JIRAs (Confidential)

1.8 Scope of EVS 6.3.0.1 System

This section provides a description of the scope of EVS 6.3.0.1 voting system components.

The **EVS 6.3.0.1** system represents a set of software applications for pre- voting, voting and post-voting election project activities for jurisdictions of various sizes and political division complexities.

Electionware EMS functions include:

- Defining the political divisions of the jurisdiction and organizing the election with its hierarchical structure, attributes, and associations.
- Defining the election events with their attributes such as the election name, date, and type, as well as contests, candidates, referendum questions, voting locations and their attributes.
- Producing the election definition and auditing reports.
- Providing administrative management functions for user, database, networking, and system management.
- Preparing and producing ballots for polling place and absentee voting or by-mail voting.
- Preparing media for precinct voting devices and central count devices.
- Configuring and programming the **ExpressVote XL UVS** devices.
- Configuring and programming the **DS200 v1.2, DS200 v1.3, DS200 v1.3.13, DS300, DS450, DS850** and **DS950** scanners for marked paper ballots.
- Import of the Cast Vote Records from **DS200 v1.2, DS200 v1.3, DS200 v1.3.13, DS300, DS450, DS850** and **DS950** scanners.
- Preview and validation of the election results.
- Producing election results tally according to voting variations and election system rules.



- Producing a variety of reports of the election results in the desired format.
- Publishing of the official election results. Auditing of election results including ballot images and log files.
- **DS200 v1.2, DS200 v1.3, DS200 v1.3.13, and DS300** are scan precinct ballot counters (tabulators) that are used in conjunction with an external ballot box. The units are designed to scan marked paper ballots or **EV XL** printed vote records, interpret and record voter marks on the marked paper ballot or record voter selections on the printed vote records, and deposit the ballots into the secure ballot box.
- The **ExpressVote XL** is a standalone precinct level Ballot Marking Device (BMD) which also includes an Audio Tactile Interface (ATI), which allows voters who cannot complete a paper ballot to generate a machine-readable and human readable paper ballot, based on vote selections made, using the ATI.
- **DS450, DS850 and DS950** are high-speed, central digital ballot scanning systems used for high-volume processing of ballots (such as vote by mail). The unit is based on COTS scanning hardware coupled with custom ES&S-developed ballot processing application software which resides on an attached workstation.

Table 3 – ES&S EVS 6.3.0.1 Custom Software Components

System Component	Application(s)	Version
EMS	Election Management Software and Central Count Location Tabulation and Report Software	6.3.0.1s
DS450	Central count application software	4.2.0.1e
DS850	Central count application software	4.2.0.1e
DS950	Central count application software	4.2.0.1e
DS200 v1.2	Scanner Firmware	3.0.0.1i
DS200 v1.3	Scanner Firmware	3.0.0.1i
DS200 V1.3.13	Scanner Firmware	3.0.0.1i
DS300	Scanner Firmware	3.0.0.1i
ExpressVote XL	BMD Firmware	4.2.1.1f



Table 4 – ES&S EVS 6.3.0.1 Custom Hardware Components

Hardware	Version
DS450	1.0
DS850	1.0
DS950	1.0
DS200 v1.2	1.2
DS200 v1.3	1.3
DS200 V1.3.13	1.3.13
DS300	1.0
ExpressVote XL	1.0

Table 5 – ES&S EVS 6.3.0.1 COTS Hardware Components

Manufacturer	Hardware	Model/Version
Dell	EMS Server	PowerEdge T430, T440, T630, R540
Dell	EMS Client or Standalone Workstation	Latitude 5520, 5580 (32GB Ram), OptiPlex 5040, 5050, 7020, XE3
Dell	Trusted Platform Module (TPM) Chip 1.2 and 2.0 (optional)	Security device (optional)
Innodisk	USB EDC H2SE (16GB) for ExpressVote 2.1	DEEUH1-16GI72AC1SB
Manufacturer	Hardware	Model/Version
Delkin	2.0 USB Flash Drive (512MB, 1GB, 2GB, 4GB, 8GB)	N/A
Delkin	3.0 USB Flash Drive (4GB, 8GB, 16GB, 32GB)	6206, 6207, 6208, 6209
Delkin	3.0 USB Flash Drive (256GB) data transfer	6210
Delkin	USB Embedded 2.0 Module Flash Drive for ExpressVote HW1.0	MY08TQJ7A-RA000-D 8 GB MY16TNK7A-RA042-D/ 16 GB
Delkin	USB Embedded 2.0 Module Flash Drive for ExpressVote HW2.1	MY16TNK7A-RA042-D/ 16 GB
Delkin	Compact Flash Memory Card (1GB)	CE0GTFHHK-FD038-D
Delkin	Compact Flash Memory Card (4GB)	CE04TQSF3-XX000-D
Delkin	Secure CF Card (2GB)	CE02TLQCK-FD000-D
Delkin	CFast Memory Card (4GB)	BE04TRSJG-3N042-D
Delkin	Compact Flash Memory Card Reader/Writer	6381
Delkin	CFAST Card (2GB, 4GB)	380-00006 – 2GB, 380-00007 – 4GB
Delkin	CFAST Card Reader/Writer	67417
Delkin USB Flash Drive	BitLocker 32.2 MB (optional)	Storage for security key (Model 10004)
D-link	network switch (1 GB Min)	DSG-1005G
YubiKey USB drive	Multi factor Authentication (optional)	5A series



Lexar	CFAST Card Reader/Writer	LRWCR1TBNA
CardLogix	Smart Card	CLXSU128kC7/ AED C7
SCM Microsystems	Smart Card Writer	SCR3310
Avid	Headphones	86002
Zebra Technologies	QR code scanner (Integrated)	DS457-SR20009, DS457-SR20004ZZWW
Symbol	QR Code scanner (External)	DS9208
Brother	DS450 and DS950 Report Printer	B6400
Dell	DS450 Report Printer	S2810dn
OKI	DS450, DS850, and DS950 Report Printer	B431dn, B431d, B432DN
OKI	DS450 and DS850 Audit Printer	Microline 420
APC	DS450 UPS	Back-UPS Pro 1500, Smart-UPS 1500
APC	DS850 UPS	Back-UPS RS 1500, Pro 1500
CyberPower	DS950 UPS	OR1500PFCLCD
CyberPower	DS450 and DS950 UPS	CP1500PFCLCD
Tripp Lite	DS450 Surge Protector	SPIKECUBE
Manufacturer	Hardware	Model/Version
Seiko Instruments	Thermal Printer	LTPD-347B
NCR/Nashua	Paper Roll	2320
Fujitsu	Thermal Printer	FTP-62GDSL001, FTP-63GMCL153
HP	Ink cartridge for DS450/DS850 ballot number imprinting	87002
HP	Ink cartridge for DS950 ballot number imprinting	HP C6195A
TDS	Ink cartridge for DS200/DS300 ballot stamping	2278
Pivot	Vote Summary Card Only Suppression Tray	97-00359

2 TEST ITEMS AND PASS/FAIL CRITERIA

2.1 Requirements to be Tested

The SLI requirements management tool stores the following:

- Requirements Matrix containing:
 - 2005 VVSG, Volume 1
 - 2005 VVSG, Volume 2
 - NYS 2022 Election Law
 - NYS 6209 Regulations
- Traceability from Requirements to test cases

2.2 Test Item Pass/Fail Criteria

Testing was conducted as an independent verification and validation across the EVS 6.3.0.1 system. System performance to pass/fail criteria was measured against expected results for each test case and related set of test procedures as defined by the Requirements Matrix. Each feature passed or failed depending upon the results of the testing performed. If the actual output from an action was equal to the expected output specified by a test case, then the action passed; if not, it failed.

3 TEST TASKS

NYSBOE Verification Testing included detailed testing required to ensure compliance to the approved Requirements Matrix are provided in this section. It should be noted that the results and discrepancy reports for each of the review/assessment and test activities are documented and maintained throughout each activity until the activity has been completed. Upon completion of the verification test engagement, all results are provided in the ES&S EVS 6.3.0.1 Specific Test Reports and archived with all testing artifacts.

3.1 Physical Configuration Audit

3.1.1 Documentation Review

ES&S EVS 6.3.0.1 documentation was reviewed as applicable to the approved Test Approach (please see section 1.6 – Approved Project Test Approach) in the delivery of the EVS 6.3.0.1’s New York TDP, as well as all NYS 2022 Election Law requirements).

General Documentation Review

As applicable to the approved Test Approach (please see section 1.6 – Approved Project Test Approach), the SLI Compliance test process included conducting a TDP review of the TDP (Technical Data Package).

ES&S EVS 6.3.0.1 documentation that was included in EAC certifications and State certifications was accepted as meeting all relevant 2005 VVSG requirements, including those requirements in Volume 1, Section 8.7, and 2005 VVSG Volume 2, Section 2 and Section 5.

Security Documentation Review

ES&S EVS 6.3.0.1 documentation that was included in EAC certifications and State certifications was accepted as meeting all relevant 2005 VVSG Security requirements.

The documentation review process consisted of an automated search through all documents followed by manual review.

A string search utility was leveraged in a custom script written to scan all documents and report a list of findings based on a preconfigured wordlist.

A copy of the script source code, all wordlists used, and the resulting artifacts generated are included in the associated testing artifacts.



Following the generation of a comma-separated value (CSV) document during the automated script's execution, a manual review was conducted to evaluate the results and verify all documentation-related requirements are sufficiently met.

For additional information, please review the Security Test Report and artifacts. No documentation discrepancies were noted.

3.1.2 Source Code Review

EVS 6.3.0.1 source code was accepted for all applicable 2005 VVSG requirements, as per the "Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022" document. A review to NYS 2022 Election Law and 6209 Regulations was performed. See "NYSBOE ES&S EVS 6.3.0.1 Source Code Review Test Report" and "NYSBOE ES&S EVS 6.3.0.1 Security Source Code Review Test Report" for additional details. Discrepancies found during testing may be found in "NYSBOE ES&S EVS 6.3.0.1 Source Code Review Test Report" "Attachment D - Source Code Review Discrepancy Review Forms (Confidential)":

3.1.3 Trusted Build

One Trusted Build was performed during this certification examination.

3.1.4 Software and Hardware Configuration Audit

The Software and Hardware Audit compared the voting system components (hardware and software) to the TDP submitted by ES&S voting systems.

The provided configurations conformed to ES&S voting systems specifications of the system under test, including TDP documentation, and was consistent with configurations listed within the EVS 6.3.0.1 EAC certification.

3.2 Functional Configuration Audit

3.2.1 Review of Prior ITA Test Cases and Results

No prior verification testing completed by previous NYSBOE ITAs was submitted for review.

3.2.2 Review of EAC Certifications

SLI Compliance accepted and leveraged all prior verification testing completed by previous EAC certifications, as per the NYSBOE "Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022" document.

3.2.3 Review of Other State Verification Testing or Risk Analysis Results

No State certification reports for the EVS 6.3.0.1 voting system test were submitted for review.

3.2.4 Review of Prior Hardware Environmental Testing

Hardware environmental testing completed by NVLAP or A2LA accredited test labs, within an EAC certification, for overall system capabilities, voting, and post-voting functions as well as adherence to hardware environmental and EMC standards was accepted as per the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document.

3.2.5 Hardware Environmental Testing

All hardware environmental testing completed against the EAC 2005 VVSG hardware environmental and EMC test requirements, within EAC certifications, was accepted, as per the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document.

3.2.6 Module Testing

SLI Compliance designed module test cases to provide coverage of the applicable requirements, as per the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document.

3.2.7 System Testing

System Testing involved exercising the specific functions of EVS 6.3.0.1 to the requirements, as per the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document.

Formal Test Execution was performed, within the provided environment of the EVS 6.3.0.1 system, to verify all modifications and pertinent requirements, as defined in “Attachment A – ES&S EVS 6.3.0.1 NYS System Requirements Matrix w Test Cases”. This includes validation of the voting system in a true end-user environment, following all pre-election day, election day, and post-election day voting rules and processes. The intent is to provide verification that a system can be used to perform its job following the exact set of processes and steps that would be used by the target customer or end-user.

The following types of system testing were not employed for EVS 6.3.0.1, as they were covered by EAC certification testing:

- Nominal Conditions
- Failure Injection
- Data Driven
- Usability
- Data Referential Integrity
- Regression
- Volume Test
- Stress Tests
- Accessibility Test
- Performance Tests
- Recovery

Regression Testing

Regression testing was performed, as two issues were resolved in the Trusted Build performed during the EVS 6.3.0.1 examination.



Formal Functional Test Execution

SLI Compliance performed the Formal Functional Test Execution testing which included functional, NY Law verification applicable to the scope of the campaign, as per the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document and “Attachment A – ES&S EVS 6.3.0.1 NYS System Requirements Matrix w Test Cases”. This is the formal functional test of the system to ensure that all ES&S voting systems modifications work, and existing features work as expected. See “NYSBOE ES&S EVS 6.3.0.1 Functional Test Report” for details of functional testing performed.

End to End

End to End testing was performed, utilizing General and Primary elections during the NYS EVS 6.3.0.1 examination, which encompassed system utilization from creating an election definition, preparing election media and artifacts, opening of polls, processing ballots, as well as the accumulation, adjudication, tallying and reporting of results.

3.2.8 Security Testing

SLI Compliance performed the Security testing applicable to the scope of the campaign, as per “Attachment A – ES&S EVS 6.3.0.1 NYS System Requirements Matrix w Test Cases”, and the NYSBOE “Attachment B - SLI Testing Approach ES&S EVS6301 - Finalized 08292022” document.

See “NYSBOE ES&S EVS 6.3.0.1 Security Functional Test Report” for details of Security functional testing performed.

The following types of Security testing for EVS 6.3.0.1, utilized a combination of leveraging EAC certification testing in conjunction with SLI examination as per the approved testing approach (see section 1.6). Portions covered by SLI are listed below:

- Role
 - (Was examined as a part of the “Access” section of the penetration test, which included investigation Role-based access controls (RBAC))
- Access
 - (Was examined as a part of the “Access” section of the penetration test, which included a review of physical security)
- System Security
 - (Was examined to verify executable resilience against tampering as a part of the “Privilege Escalation” section of the penetration test)
- System Log
 - (Was examined as a part of the “Defense Evasion” section of the penetration test to verify file integrity)
- Audit Records
 - (Was examined as a part of the “Defense Evasion” section of the penetration test, which included tampering with logging processes)
- Software Security
 - (Was examined to verify that software files could not be modified and that unauthorized software was prevented from being installed on devices as a part of the “Execution” section of the penetration test)

- Threat Protection
 - (Was examined as a part of the “Execution” section of the penetration test, evaluating the susceptibility to malware)
- Audit Log
 - (Was examined as a part of the “Defense Evasion” section of the penetration test to modify or delete log files and data)
- Vote Count Integrity
 - (Was examined within the “Execution”, “Exfiltration”, and “Cryptography” sections of the penetration test)
- Data Protection
 - (Was examined within the “Execution”, “Exfiltration”, and “Cryptography” sections of the penetration test)
- External Access
 - (Was examined within the “Execution”, “Exfiltration”, and “Cryptography” sections of the penetration test)

3.2.9 Review for Known Vulnerabilities

Any known vulnerabilities provided by ES&S Voting Systems are included in the Security testing process. All vulnerabilities are listed within the Security test report and associated attachments, including detailed vulnerability information and review of the potential for exploitation. For additional information, please review the “NYSBOE ES&S EVS 6.3.0.1 Security Functional Test Report”.

4 Conclusion

This section summarizes the conclusions for each of the areas of examination within this project.

By the conclusion of this project, all issues were resolved after delivery of updates or by consultation with the NYSBOE.

All specific details for each area can be found in the that areas specific test report and accompanying documentation.

4.1 TDP Review

SLI Compliance reviewed the EVS 6.3.0.1 TDP against the NYS 2022 Election Law and 6209 requirements. During the course of review, SLI Compliance found 10 documentation issues during this documentation review. These requirement issues were documented in JIRA; EVS6301NY-23, EVS6301NY-24, EVS6301NY-25, EVS6301NY-26, EVS6301NY-27, EVS6301NY-28, EVS6301NY-29, EVS6301NY-30, EVS6301NY-31, EVS6301NY-32.

All requirements were resolved with the submission of modified documentation and all Jira’s marked as resolved.

Additional TDP Review details can be found in the “TDP Review for ES&S EVS 6.3.0.1” and accompanying documentation.



4.2 ES&S Voting Systems Functional Testing

SLI has completed functional testing of the **ES&S EVS 6.3.0.1** system against the referenced 2005 VVSG and NYS 2022 Election Law requirements. There were 8 findings, JIRAs: EVS6301NY-2, EVS6301NY-3, EVS6301NY-4, EVS6301NY-5, EVS6301NY-21, EVS6301NY-22, EVS6301NY-34, EVS6301NY-35 .

All issues discovered during testing have been addressed and all Jira's marked as resolved.

Additional Functional Testing details can be found in the "NYSBOE ES&S EVS 6.3.0.1 Functional Test Report", Attachment C – NYS ES&S EVS 6.3.0.1 JIRAs (Confidential) and accompanying documentation.

4.3 Hardware Testing

SLI has completed Hardware testing of the **ES&S EVS 6.3.0.1 system** against the referenced 2005 VVSG and NYS 2022 Election Law requirements, as per "SLI Testing Approach for ES&S EVS 6.3.0.1".

All components of the EVS 6.3.0.1 system had all hardware requirements accepted from EAC certifications.

4.4 Source Code Review

SLI has completed the source code review of the **ES&S EVS 6.3.0.1 system** against the referenced 2005 VVSG, ES&S Voting Systems declared standards and NYS 2022 Election Law requirements, as per "SLI Testing Approach for ES&S EVS 6.3.0.1". No modified source code was found that could not be attributed to a listed modification. No discrepancies were noted.

Additional Source Code Review details can be found in the "NYSBOE ES&S EVS 6.3.0.1 Source Code Review Test Report" and accompanying documentation.

4.5 Security Source Code Review

SLI has completed the security source code review of the **ES&S EVS 6.3.0.1** system against the referenced NYS Election law, security concerns, and potential vulnerabilities. All findings resulting from the security source code review are included in this report and accompanying documentation.

Review of the findings resulted in determinations of potential vulnerabilities found. Manual review of those potential vulnerabilities determined these potential vulnerabilities would be exploitable only by a vendor insider attack.

Additional Security Source Code Review details can be found in the "NYSBOE ES&S EVS 6.3.0.1 Security Source Code Review Test Report" and accompanying documentation.



4.6 Security Functional Testing

SLI has completed Security functional testing of the **ES&S EVS 6.3.0.1** system against the referenced 2005 VVSG and NYS 2022 Election Law requirements. All findings are included in this report and accompanying documentation.

Six documentation discrepancies were noted, EVS6301NY-6, EVS6301NY-8, EVS6301NY-12, EVS6301NY-13, EVS6301NY-16, and EVS6301NY-19 and all were resolved with updated documentation.

16 Functional Discrepancies were noted, EVS6301NY-6, EVS6301NY-7, EVS6301NY-8, EVS6301NY-9, EVS6301NY-10, EVS6301NY-11, EVS6301NY-12, EVS6301NY-13, EVS6301NY-14, EVS6301NY-15, EVS6301NY-16, EVS6301NY-17, EVS6301NY-18, EVS6301NY-19, EVS6301NY-20, EVS6301NY-33.

All issues discovered during testing have been addressed and all Jira's marked as resolved.

Additional detail is included in the "NYSBOE ES&S EVS 6.3.0.1 Security Functional Test Report", Attachment C - NYS ES&S EVS 6.3.0.1 Security Jira Issues (CONFIDENTIAL) and accompanying documentation.

End of Master Test Report
