



**COMMONWEALTH OF PENNSYLVANIA**  
**TEST PROTOCOL**  
**FOR**  
**EXAMINATION OF MODIFCATIONS TO**  
**GEMS SSL CERTIFICATE, EZROSTER 2.7.11**  
**AND BRIDGEPOINT SOFTWARE**

## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	References .....	1
1.2	Terms and Abbreviations .....	1
1.3	Background .....	2
<b>2.0</b>	<b>TEST ITEMS .....</b>	<b>2</b>
2.1	Software .....	2
2.2	Hardware .....	3
2.3	Peripherals .....	3
2.4	Test Support Equipment/Materials .....	3
<b>3.0</b>	<b>TEST MATERIALS .....</b>	<b>4</b>
3.1	Technical Data Package .....	4
3.2	Third Party Test Results .....	4
3.3	Previous Test Results .....	4
<b>4.0</b>	<b>TEST SPECIFICATIONS.....</b>	<b>5</b>
<b>5.0</b>	<b>TEST PROCEDURES .....</b>	<b>5</b>
<b>6.0</b>	<b>TEST DATA .....</b>	<b>7</b>
6.1	Data Recording .....	7
6.2	Data Evaluation.....	7
ATTACHMENT A	ELECTION DEFINITIONS .....	8
ATTACHMENT B	TEST CASES .....	18

## **1.0 INTRODUCTION**

The primary purpose of this examination is to confirm that the submitted modifications to the ES&S Accuvote TSx voting system 4.6.4 and GEMS version 1.18.25 GEMS meets the requirements of Article XI-A of the Pennsylvania Election Code, sections 1101-A to 1122-A, 25 P.S. §§ 3031.1 – 3031.22. This examination is being performed per the direction of the Secretary of the Commonwealth, acting through the Pennsylvania Department of State, Bureau of Commissions, Elections and Legislation. This examination will commence on April 18, 2013 at the following location:

North Office Building  
Hearing Room 3  
401 North Street  
Harrisburg, Pennsylvania

The daily duration of this re-examination will be from 9:00 A.M. until 5:00 P.M. Eastern Standard Time unless a representative of the Secretary of the Commonwealth requests an extension, suspension, or a halt in testing.

### **1.1 References**

The documents listed below were used in the development of the Test Protocol.

- Article XI-A of the Pennsylvania Election Code, sections 1101-A to 1122-A, 25 P.S. §§ 3031.1 – 3031.22
- Federal Election Commission 2002 Voting Systems Standards
- Help America Vote Act (HAVA) of 2002, Public Law 107-252, 42 U.S.C. § 15301 *et seq.*

### **1.2 Terms and Abbreviation**

*This subsection lists terms and abbreviations relevant to this re-examination*

“COTS” – Commercial Off-The-Shelf

“Department” – Pennsylvania Department of State

“DRE” – Direct Recording Electronic

“EMS” – Election Management System

“Examiner” – The examiner appointed by the Secretary of the Commonwealth to conduct the re-examination

“GEMS” – ES&S election management system

“PA” – The Commonwealth of Pennsylvania

“Pennsylvania Election Code” - Article XI-A of the Pennsylvania Election Code, sections 1101-A to 1122-A, 25 P.S. §§ 3031.1 – 3031.22

“Secretary” – The Secretary of the Commonwealth

“TDP” – Technical Data Package

“VSS” – Federal Election Commission 2002 Voting System Standards

“VVSG” – Election Assistance Commission 2005 Voluntary Voting System Guidelines

### **1.3 Background**

The Accuvote TSx voting system version 4.6.4 and GEMS version 1.18.25 were certified for use in the Commonwealth of Pennsylvania on January 17, 2006 after an examination conducted pursuant to the Pennsylvania Election Code. The Accuvote TSx voting system version 4.6.4 and GEMS version 1.18.25 have been in use by Pennsylvania counties since its initial certification. Additionally, per the formal request of a group of Pennsylvania voters, a re-examination was performed on March 1, 2012, to ascertain whether the certified system complies with the requirements of the Pennsylvania Election Code.

Since that time, ES&S has submitted the following changes to the previously certified system:

- **BridgePoint v. 1.5.0.0**

BridgePoint is an electronic pollbook data conversion software application that jurisdictions can utilize outside of the election management system to create and finalize all required data needed by their electronic pollbook solution.

- **EZRoster v. 2.7.10**

EZRoster is an application installed on the ExpressPoll 5000 hardware that allows the ExpressPoll to be utilized as an electronic pollbook.

- **GEMS v. 1.18.25 Server Root SSL Certificate and AccuVote TSx v. 4.6.4 SSL Certificate**  
System maintenance to update the TSx SSL certificate and the GEMS Server root SSL certificate

This Test Protocol was developed to ascertain whether the components comply with the requirements set forth in the Pennsylvania Election Code.

### **2.0 TEST ITEMS**

*This section contains detailed descriptions of the items tested during the re-examination, including all software, hardware, and peripherals, both proprietary and COTS, and any test support equipment or materials necessary for test performance.*

#### **2.1 Software**

*This subsection contains a listing of the software and firmware being evaluated.*

**Table 2.1 Software**

<b>Component Name</b>	<b>Version</b>	<b>Unique Identifier (digital signature or hash value)</b>
GEMS Server	1.18.25	TBD
Ballot Station	4.6.4	TBD
BridgePoint	1.5.0.0	TBD
EZRoster	2.7.1.0	TBD
CardWriter	1.1.4.0, 1.1.5, 1.1.6	TBD

**2.2 Hardware**

*This subsection contains a listing of the hardware being evaluated.*

**Table 2.2 Hardware**

<b>Component Name</b>	<b>Model/Version Number</b>	<b>Description</b>
AccuVote	TSx	DRE
ExpressPoll	5000	Electronic Poll Book
GEMS Server	1.18.25	EMS

**2.3 Peripherals**

*This subsection contains detailed descriptions of optional equipment used by the system being evaluated.*

**Table 2.3 Peripherals**

<b>Part Name</b>	<b>Model Number</b>	<b>Revision Number</b>	<b>Description</b>
PCMCIA		N/A	Transport media
Desktop Printer	Oki Data B431 dn	N/A	Report printer
<b>PC</b>			<b>BridgePoint PC</b>

**2.4 Test Support Equipment/Materials**

*This subsection contains detailed descriptions of the test support equipment and materials needed to perform the required testing.*

The voting system manufacturer must provide a GEMS Server currently certified for use in Pennsylvania loaded with the closed primary and general election definitions (Appendix A). These election definitions are the ballot configurations that will be used throughout the examination. The manufacturer is responsible for providing the Department and the Examiner with technical staff to support the examination. The manufacturer must provide a precinct-tabulation device, an ExpressPoll 5000, and a GEMS server to be examined. The manufacturer must be prepared to load the firmware/software for each device. The manufacturer must be prepared to print pre-election reports, precinct results reports, audit logs, and post-election reports.

### 3.0 TEST MATERIALS

*This section contains a detailed description of all materials made available to Examiner for the re-examination.*

#### 3.1 Technical Data Package

*This subsection lists all manufacturer provided documentation that is relevant to the system being tested.*

**Table 3.1 Documentation**

<b>Document Name</b>	<b>Part Number</b>	<b>Version</b>	<b>Issue Date</b>
ES&S EZRoster 2.7.10.0 Change Release Notes	N/A	N/A	N/A

#### 3.2 Third Party Test Reports

*This subsection lists the reports provided by third party entities that are relevant to the system being evaluated and the test engagement.*

**Table 3.2 Third Party Test Reports**

<b>Report Title</b>	<b>Description</b>	<b>Report No.</b>	<b>Issue Date</b>
WYLE LETTER			

#### 3.3 Previous Test Results

*This subsection describes the results of any previous testing performed by the Department that are relevant to the examination and the system being evaluated.*

**Table 3.3 Previous Test Results**

<b>Report Title</b>	<b>Description</b>	<b>Revision</b>	<b>Issue Date</b>
Diebold Election Systems, Inc. AccuVote OS, AccuVote TSX, GEMS Election Management System and Accessories	PA Examination	N/A	10/19/2005
Diebold Election Systems, Inc AccuVote OS, AccuVote TSX, GEMS Election Management System and Accessories	PA Examination	N/A	12/19/2005
Diebold Election Systems, Inc AccuVote OS, AccuVote TSx, GEMS Election Management System and Accessories	PA Examination	N/A	01/07/2006
Commonwealth of Pennsylvania Department of State Updated Results of the Premier Election Solutions Express Poll 5000 Electronic Poll Book Demonstration	PA Examination	N/A	03/04/2011
Commonwealth of Pennsylvania Test Report for Re-Examination of the Accuvote-TSx Voting System Version 4.6.4 and the GEMS Elections Management System Version 1.18.25	PA Re-examination	N/A	08/21/2012

#### **4.0 TEST SPECIFICATIONS**

*This section contains a detailed description of the procedures to be followed during test setup and preparation.*

The examination of the voting system will occur in an environmentally controlled room. The room will be configured such that the Department, the Examiner, and the voting system manufacturer have their own independent work areas. The public will be allowed to observe the examination, but may not comment or interact with either the employees of the Department, the Examiner, or the voting system manufacturer, at any time. The manufacturer will be allotted time and space to stage the voting system prior to the examination. This time and space will be determined between the Department and the manufacturer in advance of the examination date. Once the manufacturer informs the Department that the voting system is properly set up, the Examiner will provide the manufacturer with the firmware/software for each device, submitted to the Department from the trusted source. The manufacturer will load the firmware/software on to the required media for installation onto each device and install the firmware/software onto each device before commencement of the re-examination. Once each device is loaded with the firmware/software, the manufacturer will not be allowed access to the internal components of the devices without the consent of the Department or the Examiner. If the examination is suspended, each device will be secured in a manner to ensure control of the test environment. If, at any point, the Department or the Examiner determines that the control of the test environment has been compromised, all firmware/software will be reloaded on each device.

#### **5.0 TEST PROCEDURES**

*This section contains a detailed description of the test sequence, test procedures and expected results.*

The test cases for this examination are contained in Appendix B of this Test Protocol. They can be executed independently and in any order.

#### **GEMS v. 1.18.25 Server Root SSL Certificate and AccuVote TSx 4.6.4 SSL Certificate**

Since the time of the original certification on January 17, 2006, system maintenance has been performed on an SSL certification used for communication between the GEMS Server and the TSx units which expired in 2013. The update of the SSL certificate was examined by Wyle Laboratory and documented in the letter dated **XXX**.

A new installation of the GEMS software will be installed as part of the test set up. Once installed this examination will execute test case “SSL Certificate Update” documented in Appendix B of this document to verify the voting system with the updated SSL certificate meets the requirements of Article XI-A of the Pennsylvania Election Code, sections 1101-A to 1122-A, 25 P.S. §§ 3031.1 – 3031.22.

#### **EZRoster v. 2.7.10 with CardWriter**

Must meet the following requirements:

- The computer list shall be in a form prescribed and approved by the Secretary. (25 Pa. C.S. § 1402(b)(2)).

- For each election district, the list shall contain the names of the registered electors – alphabetically by last name. (25 Pa.C.S. § 1402(b)(2)).
- Each page of the list (or each screen) shall contain the name of the county. (25 Pa.C.S. § 1402(b)(2)).
- Each page of the list (or each screen) shall contain the election district. (25 Pa.C.S. § 1402(b)(2)).
- Each page of the list (or each screen) shall contain the date of the election. (25 Pa.C.S. § 1402(b)(2)).
- Each page of the list (or each screen) shall contain the date and time the list was prepared. (25 Pa.C.S. § 1402(b)(2)).

The list must contain:

- A legible signature. (25 Pa.C.S. § 1402(b)(2)).
- The street address. (25 Pa.C.S. § 1402(b)(2)).
- Political party of each registered elector. (25 Pa.C.S. § 1402(b)(2); 4 Pa. Code § 183.11(b)(3)).
- Suitable space for insertion of the signature of the registered elector. (25 P.S. § 3050(a.3); 25 Pa.C.S. § 1402(b)(2)).
- Suitable space for insertion by the proper election official of the number and letter of the stub of the ballot issued to the registered elector or the registered elector's number in the order of admission to the voting systems. (25 P.S. § 3050(a.3); 25 Pa.C.S. § 1402(b)(2)).
- Suitable space for insertion of the initials of the election official who enters the record of voting in the district register. (25 P.S. § 3050(a.3); 25 Pa.C.S. § 1402(b)(2)).
- Indication of whether the elector needs assistance to vote and, if so, the nature of the disability. (25 Pa.C.S. § 1402(b)(2)).
- The date of birth of the registrant. (4 Pa. Code § 183.11(b)(4)).
- The SURE registration number of the registrant. (4 Pa. Code § 183.11(b)(5)).
- An elector's affirmation appears above each signature section and contains the verbiage "I hereby certify that I am qualified to vote in this election." (25 P.S. § 3043).
- An indication of whether the registrant's status is active or inactive. (25 Pa.C.S. § 1901(c); 4 Pa. Code § 183.11(b)(6)).

#### Flags Required by the SURE System

- For voters who are "Inactive," affirmation is required. (25 Pa.C.S. § 1901(c) and (d)(3); 4 Pa. Code § 183.11).



- “ID Required” - Indication of whether the voter needs to present voter identification. An elector who appears to vote in an election district for the first time must present valid voter identification. (25 P.S. § 3050(a)).
- “Absentee Ballot” – If an elector who voted an absentee ballot is in the municipality on Election Day, he or she must vote in the precinct, and the absentee ballot is voided. (25 P.S. § 3146.6(b)).
- “Must vote in person”- Indication of whether the voter needs to present voter identification if the elector votes for the first time by mail. (Federal: 42 U.S.C. § 15483(b)).

In addition, the ExpressPoll 5000 loaded with EZRoster 2.7.10 will be used to execute the test cases “Cardwriter Functional Verification (General Election)” and “Cardwriter Functional Verification (Closed Primary)” located in Appendix B.

## **6.0 TEST DATA**

*This section contains a detailed description of the test election definitions and ballot logic being exercised.*

The election definitions being used for this examination are provided in Appendix A of this Test Protocol. Due to the nature of this examination, the voting test pattern will not be followed. The election definitions are only being used as a sample election.

### **6.1 Data Recording**

*This subsection contains a detailed description of the procedures to be followed during test execution and data collection.*

All test data produced during this examination is the property of the Department. The output test data will be collected and stored in an appropriate manner as to allow for data analysis. Actual results from executed tests will be recorded in real-time in Test Execution Logs.

### **6.2 Data Evaluation**

The Examiner will evaluate all test results against the expected results set forth in the test cases provided in Appendix B. The acceptable range for system performance and the expected results is derived from the test designers experience and expertise. If an expected result is not achieved, an evaluation will be performed as to “why” the test or test step did not produce the expected results. This evaluation will consider test error, invalid expectations, and system performance. Failure to achieve the expected results does not constitute a test failure. A test failure only occurs when the “Criteria for Evaluation of Test Results,” as set forth in the test cases, are not achieved for a specific test.

**ATTACHMENT A**  
**ELECTION DEFINITIONS**

**Election Definition: Pennsylvania Certification Closed Primary Election**

**Primary Election Description:**

A closed primary election for 2 parties in 3 precincts. This election contains 35 contests compiled into 6 ballot styles. Each ballot style contains 15 contests. The voting variations supported in a primary election by the Commonwealth of Pennsylvania are defined in this election. The voting variations are as follows:

- Partisan contest
- Non-Partisan
- Primary Presidential delegation nominations
- Write-In voting
- N of M Contest
- Cross-Party Filed Candidates

This closed primary election was designed to functionally test the handling of multiple ballot styles across geographical subdivisions, support for two languages, and support for common primary specific voting variations.

**Configuration:**

**EMS computer loaded with software certified for use in Pennsylvania to create the following configuration:**

**Name:** Pennsylvania Certification Closed Primary Election

**Voting Devices:** 1 machine for each precinct

**Precincts:** Precinct 1, Precinct 2, Precinct 3

**Parties:** Republican, Democrat

**Languages:** English, Spanish

**Totals Contests:** 35

**Contests as follows:**

Precinct 1 REP	Precinct 2 REP	Precinct 3 REP	Precinct 1 DEM	Precinct 2 DEM	Precinct 3 DEM
<p align="center"><b>President of the United States</b> Vote for One</p> <p>James Collins</p> <p>Alexander P. Bicket</p> <p>Carol Koethen</p> <p>Write-In</p>			<p align="center"><b>President of the United States</b> Vote for One</p> <p>Barry Josey</p> <p>Calvin Marino</p> <p>Write-In</p>		
<p align="center"><b>United States Senator</b> Vote for One</p> <p>Bob Ford <i>Allegheny County</i></p> <p>Colby Lincoln <i>Delaware County</i></p> <p>Write-In</p>			<p align="center"><b>United States Senator</b> Vote for One</p> <p>Oscar Draper <i>Cumberland County</i></p> <p>Carter McGaw <i>Philadelphia County</i></p> <p>Write-In</p>		
<p align="center"><b>Representative in Congress</b> <b>5<sup>th</sup> District</b> Vote for One</p> <p>Ben Baker <i>Allegheny County</i></p>		<p align="center"><b>Representative in Congress</b> <b>10<sup>th</sup> District</b> Vote for One</p> <p>Cheryl Simon</p>	<p align="center"><b>Representative in Congress</b> <b>5<sup>th</sup> District</b> Vote for One</p> <p>Barbara Barret Hicks <i>Montgomery County</i></p>		<p align="center"><b>Representative in Congress</b> <b>10<sup>th</sup> District</b> Vote for One</p> <p>William Sullivan</p>

Write-In	<p style="text-align: center;"><i>York County</i></p> <p>Lois Koss <i>Erie County</i></p> <p>Write-In</p>	<p>Clinton Testo <i>Centre County</i></p> <p>Write-In</p>	<p style="text-align: center;"><i>Butler County</i></p> <p>Write-In</p>
<p style="text-align: center;"><b>Governor</b> Vote for One</p> <p>Dean Lindsey <i>Allegheny County</i></p> <p>Don Etter <i>Allegheny County</i></p> <p>Joe Carlton <i>Washington County</i></p> <p>Edwin Lewis <i>Lancaster County</i></p> <p>Samuel Lawton <i>Bucks County</i></p> <p>Write-In</p>		<p style="text-align: center;"><b>Governor</b> Vote for One</p> <p>Charles Jasen <i>Montgomery County</i></p> <p>Shirley Henning <i>Luzerne County</i></p> <p>Write-In</p>	
<p style="text-align: center;"><b>Lieutenant Governor</b> Vote for One</p> <p>Scott Montes <i>Berks County</i></p> <p>Saul Currier <i>Lehigh County</i></p> <p>Arnold Krill <i>Lycoming County</i></p> <p>Write-In</p>		<p style="text-align: center;"><b>Lieutenant Governor</b> Vote for One</p> <p>Sherman R. Bucher <i>Philadelphia County</i></p> <p>Richard V. Suits <i>Cambria County</i></p> <p>Tabathia Song <i>Allegheny County</i></p> <p>Kenneth Interlicchio <i>Philadelphia County</i></p> <p>Write-In</p>	
<p style="text-align: center;"><b>Representative in the General Assembly</b> <b>83<sup>rd</sup> District</b> Vote for One</p> <p>Harry Rider <i>Cascade</i></p> <p>Robert Tyrell <i>McNett</i></p> <p>Write-In</p>	<p style="text-align: center;"><b>Representative in the General Assembly</b> <b>84<sup>th</sup> District</b> Vote for One</p> <p>Peter Valle <i>Muncy</i></p> <p>Write-In</p>	<p style="text-align: center;"><b>Representative in the General Assembly</b> <b>83<sup>rd</sup> District</b> Vote for One</p> <p>R. J. Abbott <i>Shrewsbury</i></p> <p>Peter F. Saxton <i>Willamspport</i></p> <p>Write-In</p>	<p style="text-align: center;"><b>Representative in the General Assembly</b> <b>84<sup>th</sup> District</b> Vote for One</p> <p>Neil Carey <i>Lewis</i></p> <p>Saul Currier <i>Eldred</i></p> <p>Write-In</p>
<p style="text-align: center;"><b>Delegate to the National Convention –5<sup>th</sup> District</b> Vote for Not More Than Three</p> <p>Gloria Dillion Heather Heidelbaugh Herbert Devine George A. Fisk Doris Shiddles Andre Ninia Brian Getz Chad Snow Diane Rubin Elizabeth Piazza</p>		<p style="text-align: center;"><b>Delegate to the National Convention –5<sup>th</sup> District</b> Electing 2 Males and 2 Females Vote Not More Than Four</p> <p>Vincent Seymour <i>(M) Committed to Barry Josey</i></p> <p>Toni Hamilton <i>(F) Committed to Calvin Marino</i></p> <p>Sam Patel <i>(M) Committed to Barry Josey</i></p>	

<p>Write-In Write-In Write-In</p>	<p>Robert Rocco <i>(M) Committed to Calvin Marino</i></p> <p>Renee Cohn Jubelrier <i>(F) Committed to Calvin Marino</i></p> <p>Morton Steele <i>(M) Committed to Calvin Marino</i></p> <p>Mary Burke <i>(F) Committed to Barry Josey</i></p> <p>Nyda E. Hambin <i>(F) Committed to Barry Josey</i></p> <p>Write-In Write-In Write-In Write-In</p>
<p align="center"><b>Judge of the Superior Court</b> Vote for One</p> <p>Richard Maxian <i>Philadelphia County</i></p> <p>Marjorie Hall <i>Delaware County</i></p> <p>Robert L. Linkey <i>Bucks County</i></p> <p>Write-In</p>	<p align="center"><b>Judge of the Superior Court</b> Vote for One</p> <p>Linda Gapp <i>Cumberland County</i></p> <p>Patricia Smallmon <i>Allegheny County</i></p> <p>Write-In</p>
<p align="center"><b>Judge of the Commonwealth Court</b> Vote for One</p> <p>Chris Carpenter <i>Montgomery County</i></p> <p>Write-In</p>	<p align="center"><b>Judge of the Commonwealth Court</b> Vote for One</p> <p>Eugene Ruff <i>Washington County</i></p> <p>Lewis Tese <i>Luzerne County</i></p> <p>Write-In</p>
<p align="center"><b>Judge of the Court of Common Pleas</b> Vote for Not More Than Two</p> <p>Mary L. Daniel <i>Armstrong</i></p> <p>John Roy <i>Clinton</i></p> <p>Jack "Duke" Brodisky <i>McNett</i></p> <p>Jon Young <i>Muncy</i></p> <p>Vic Stabile <i>Gamble</i></p> <p>Write-In</p> <p>Write-In</p>	<p align="center"><b>Judge of the Court of Common Pleas</b> Vote for Not More Than Two</p> <p>Joanne Shollzert <i>Williamsport</i></p> <p>Kerry Jones <i>Williamsport</i></p> <p>Steven Miller <i>Lewis</i></p> <p>Shirley Henning <i>Mill Creek</i></p> <p>Write-In</p> <p>Write-In</p>
<p align="center"><b>County Chief Executive</b> Four Year Term Vote for One</p>	<p align="center"><b>County Chief Executive</b> Four Year Term Vote for One</p>

Norman Powers <i>Williamsport</i>  Sandra Reilly <i>McNett</i>  Write-In			Micheal Santarcangelo <i>Fairfield</i>  Charles Place <i>Gamble</i>  Write-In		
<b>School Director          Region 6</b> Four Year Term Vote for Not More Than Two			<b>School Director          Region 6</b> Four Year Term Vote for Not More Than Two		
Gerald Danson  Greg Ortiz  Shlomo Archibald  Delores DeVan  Write-In  Write-In			Douglas Stone  Gerald Danson  Greg Ortiz  Shlomo Archibald  Delores DeVan  Write-In  Write-In		
<b>Commissioner          Seat 1</b> Four Year Term Vote for One	<b>Commissioner          Seat 2</b> Four Year Term Vote for One	<b>Commissioner          Seat 3</b> Four Year Term Vote for One	<b>Commissioner          Seat 1</b> Four Year Term Vote for One	<b>Commissioner          Seat 2</b> Four Year Term Vote for One	<b>Commissioner          Seat 3</b> Four Year Term Vote for One
Stephen Harrick  Write-In	Steve West  Write-In	William Malicki  Gary Klemann  Write-In	George Fisk  Write-In	Tetty Rogiers  Write-In	Arnold Wells  Write-In
<b>Referendum A          Bond Issue</b>					
To promote and assure the preservation and improvement of essential rail passenger and freight services to the inhabitants of the state, shall section two of chapter one hundred eighteen of the laws of nineteen hundred seventy-four, authorizing the creation of a state debt in the amount of two hundred fifty million dollars for capital facilities be approved?					
Yes					
No					

**Election Definition: Pennsylvania Certification General Election**

**General Election Description:**

A general election combining presidential year contests, non-presidential year contests, and municipal contests into a single election held in 3 precincts one of which is a split precinct on the “Representative in the General Assembly” contests. This election contains 21 contests compiled into 4 ballot styles (excluding language styles). 15 of the contests are in all ballot styles. The other 6 are split between at least 2 of the precincts with a maximum of 21 different contests spread across the 3 precincts. All voting variations supported by the Commonwealth of Pennsylvania are defined in this election. The voting variations are as follows:

- Partisan contest
- Non-Partisan contest
- N of M contest
- Referendum contest
- Retention Contest
- Straight Party voting
- Write-In voting
- Split Precinct
- Cross-Party Nominated

This general election was designed to functionally test the handling of multiple ballot styles across geographical subdivisions, support for English and Spanish languages, support for all Pennsylvania voting variations, and audio support for English and Spanish.

**Configuration:**

**EMS computer loaded with software certified for use in Pennsylvania to create the following configuration:**

**Name:** Pennsylvania Certification General Election

**Voting Devices:** 1 machine for each precinct

**Precincts:** Precinct 1, Precinct 2 split into 2a and 2b, Precinct 3

**Parties:** Republican, Democratic, Green, Libertarian

**Languages:** English, Spanish

**Totals Contests:** 21

**Contests as follows:**

Precinct 1	Precinct 2a	Precinct 2b	Precinct 3
<b>Straight Party</b>			
Republican			
Democratic			
Green			
Libertarian			
<b>President/Vice President of the United States</b>			
Vote for the Candidate of One Party for President and Vice President or insert the names of candidates			
James Collins			
Arthur Remus			

<p><i>Republican</i></p> <p>Calvin Marino Keith Satterwhite <i>Democratic</i></p> <p>John P. Defazio Louis Denn <i>Green</i></p> <p>June Perkins David Heroux <i>Libertarian</i></p> <p>Write-In</p>	
<p align="center"><b>United States Senator</b> Vote for One</p> <p>Colby Lincoln <i>Republican</i></p> <p>Oscar Draper <i>Democratic</i></p> <p>Eric Sheely <i>Libertarian</i></p> <p>Write-In</p>	
<p align="center"><b>Representative in Congress</b> <b>5<sup>th</sup> District</b> Vote for One</p> <p>Ben Baker <i>Republican</i></p> <p>Barbara Barrett Hicks <i>Democratic</i></p> <p>Write-In</p>	<p align="center"><b>Representative in Congress</b> <b>10<sup>th</sup> District</b> Vote for One</p> <p>Lois Koss <i>Republican</i></p> <p>William Sullivan <i>Democratic</i></p> <p>Write-In</p>
<p align="center"><b>Governor/Lieutenant Governor</b> Vote for the Candidate of One Party for Governor and Lieutenant Governor</p> <p>Joe Carlton Arnold Krill <i>Republican</i></p> <p>Charles Jasen Kenneth Interlicchio <i>Democratic</i></p> <p>Robert Marsh Theodore Kopp <i>Green</i></p> <p>Write-In</p>	
<p align="center"><b>Representative in the General Assembly</b> <b>83<sup>rd</sup> District</b> Vote for One</p> <p>Harry Rider <i>Republican</i></p> <p>R. J. Abbott <i>Democratic</i></p>	<p align="center"><b>Representative in the General Assembly</b> <b>84<sup>th</sup> District</b> Vote for One</p> <p>Peter Valle <i>Republican</i></p> <p>Neil Carey <i>Democratic</i></p>



<p>Derek Carlson <i>Libertarian</i></p> <p>Write-In</p>	<p>Write-In</p>
<p align="center"><b>Judge of the Superior Court</b> Vote for One</p> <p>Robert L. Linkey <i>Republican</i></p> <p>Patricia Smallmon <i>Democratic</i></p> <p>Write-In</p>	
<p align="center"><b>Judge of the Commonwealth Court</b> Vote for One</p> <p>Chris Carpenter <i>Republican</i></p> <p>Eugene Ruff <i>Democratic</i></p> <p>Write-In</p>	
<p align="center"><b>Judge of the Court of Common Pleas</b> Vote for Not More Than Two</p> <p>Mary L. Daniel <i>Republican</i></p> <p>Jack "Duke" Brodisky <i>Republican</i></p> <p>Joanne Schollzert <i>Democratic</i></p> <p>Kerry Jones <i>Democratic</i></p> <p>Write-In</p> <p>Write-In</p>	
<p align="center"><b>County Chief Executive</b> Four Year Term Vote for One</p> <p>Norman Powers <i>Republican</i></p> <p>Micheal Santarcangelo <i>Democratic</i></p> <p>Write-In</p>	
<p align="center"><b>County Controller</b> Four Year Term Vote for One</p> <p>Paul M Bertel-Lincoln <i>Republican</i></p>	

Donna Berke <i>Democratic</i>  Write-In		
<b>District Attorney</b> Four Year Term Vote for One		
Franklin Margo <i>Republican</i>  Donald Hensley <i>Democratic</i>  Write-In		
<b>School Director</b> <b>Region 6</b> Four Year Term Vote for Not More Than Two		
Gerald Danson <i>Republican/Democratic</i>  Shlomo Archibald <i>Republican/Democratic</i>  Write-In  Write-In		
<b>Commissioner</b> Seat 1 Four Year Term Vote for One  Stephen Harrick <i>Republican</i>  George Fisk <i>Democratic</i>  Write-In	<b>Commissioner</b> Seat 2 Four Year Term Vote for One  Steve West <i>Republican</i>  Tetty Rogiers <i>Democratic</i>  Write-In	<b>Commissioner</b> Seat 3 Four Year Term Vote for One  William Malicki <i>Republican</i>  Arnold Wells <i>Democratic</i>  Write-In
<b>Statewide Referendum</b> <b>Water and Sewer Improvements Bond Referendum</b>		
Do you favor the incurring of indebtedness by the Commonwealth of \$400,000,000 for grants and loans to municipalities and public utilities for the cost of all labor, materials, necessary operational machinery and equipment, lands, property, rights and easements, plans and specifications, surveys, estimates of costs and revenues, prefeasibility studies, engineering and legal services and all other expenses necessary or incident to the acquisition, construction, improvement, expansion, extension, repair or rehabilitation of all or part of the drinking water system, storm water, nonpoint source projects, nutrient credits and wastewater treatment system projects?  Yes  No		
<b>Retention of Tony Grzanich</b>		
Shall Tony Grzanich be retained for an additional term as Justice of the Supreme Court of the Commonwealth of Pennsylvania?  Yes		

No
<b>Retention of Debbie Marks</b>
Shall Debbie Marks be retained for an additional term as Justice of the Supreme Court of the Commonwealth of Pennsylvania?
Yes
No

**ATTACHMENT B**

**TEST CASES**

**Test Case Identifier:** SSL Certificate Update

The system under test will be set up and configured by ES&S. The election data used during this test will be the General Election from Appendix A. The main objectives of this test are as follows:

- Verify that the system can upload and download election data between the server and TSx touch screen units with the SSL authentication turned on.
- Verify that the system can detect matched and unmatched pairs of certificates.
- Check the performance of the system with dates pre and post October 3, 2030.
- Collect, describe and account for all error messages that might be generated by the installation of the certificates and following utilization of the system.

**Procedure**

The following actions shall be performed in the stated order, to test the installation of new SSL Authentication Certificates on GEMS Servers and the interaction of the servers with client TSx touch screen voting devices and any errors or malfunctions that may result. The following basic steps will provide a means to ensure that the requirements are met. The Examiner will document the exact test procedures at the time of the test to ensure repeatability.

**Objective 1**

- Step 1: Record all Hash value for the certificates and .ins files prior to loading in the test environment.
- Step 2: Set up the system as it would be used in the field with the provided SSL certificates
- Step 3: Record the location and process for the installation of SSL certificates.
- Step 4: Verify that SSL authentication is active on the GEMS Server and the TSx touch screen device.
- Step 5: Attempt to transfer election data from the GEMS Server to touch screen device using SSL Authentication.
- Step 6: Verify that process was successful and record any errors that occur.

**Objective 2**

Step 7: Combinations of old and new certificates will be tested to verify that the systems will detect mismatched pairs of certificates. The table below lists the combinations of certificates that will be tested. The date on each machine will be altered to ensure the expiration validation is passed.

GEMS Server	Touch screen Device
Old Certificate	Old Certificate
Old Certificate	New Certificate
New Certificate	Old Certificate
New Certificate	New Certificate

- Step 8 Attempt to transfer election data from GEMS Server to the TSx touch screen device to ensure the system detects mismatched pairs, for each combination. Record results and note any errors that occur.
- Step 9: Install new SSL Authentication Certificate on the GEMS Server and verify that the new certificate is properly installed, noting any errors that occur.

**Objective 3**

- Step 10: Change the date and time on GEMS Server to a time prior to October 3, 2030 and note any errors that may occur.
- Step 11: Change the date and time to a date after October 3, 2030, and record the results while noting any errors that occur.

<b>Test Case Identifier:</b> Cardwriter Functional Verification (General Election)	
<b>Functional Requirements:</b>	The Express Poll 5000 card writing functionality must be able to program voter access card media with the proper keys to allow for ballot styles based on geographical subdivisions to properly be retrieved and presented to a voter in a General Election
<b>Test Objective:</b> To determine if the card writer functionality of the Express Poll 5000 can properly write smart cards for voter access for one time use.	<b>Test Configuration:</b> Precinct tabulation device configured as described for normal election day operation by Pennsylvania procedures and/or the device manufacturer. A TSx unit will be loaded with all precincts from the "Pennsylvania Certification General Election."
<b>Test Equipment:</b>	Express Poll 5000, 10 voter access cards, TSx units
<b>Special Procedural Requirements:</b>	None
<b>Assumptions:</b>	None
<b>Step</b>	<b>Description</b>
<b>1000</b>	From the Express Poll unit, encode two voter access cards for each precinct in the General Election.  <i>Expected:</i> The voter access cards can be programmed.  <i>Actual:</i>
<b>1010</b>	Insert the first Precinct 1 voter access card into the TSx.  <i>Expected:</i> The TSx accepts the voter access card and displays the ballot style of Precinct 1.  <i>Actual:</i>
<b>1020</b>	Use the designated method to advance the through the ballot. Observe the contests and candidates for Precinct 1 ballot style are displayed.  <i>Expected:</i> All contests and candidates are accurately displayed.  <i>Actual:</i>
<b>1030</b>	Use the designated method to navigate to the first contest and select the first candidate.  <i>Expected:</i> The TSx navigates to the first contest and the selection for the first candidate is input.  <i>Actual:</i>
<b>1040</b>	Use the designated method to advance the "Ballot Review." Observe the "Ballot Review" to see if the above selections are indicated. Use the designated method to cast the voted selections.

	<p><i>Expected:</i> The precinct tabulation device advances to the “Ballot Review” screen. After review, the ballot is cast successfully.</p> <p><i>Actual:</i></p>
<b>1050</b>	<p>Remove the ejected voter access card or use the designated method to remove the used voter access card. Reinsert the used voter access card.</p> <p><i>Expected:</i> The TSx should give an indication that the voter access card has been used.</p> <p><i>Actual:</i></p>
<b>1060</b>	<p>Insert the second Precinct 1 voter access card into the TSx.</p> <p><i>Expected:</i> The TSx accepts the voter access card and displays the ballot style of Precinct 1.</p> <p><i>Actual:</i></p>
<b>1070</b>	<p>Select the first candidate in every “1 of 1” race, the first N in every “N of M” race, and “Yes” for every Referendum race.</p> <p><i>Expected:</i> Every candidate can be input as described.</p> <p><i>Actual:</i></p>
<b>1080</b>	<p>Use the designated method to advance the “Ballot Review.” Observe the “Ballot Review” to see if the above selections are indicated. Use the designated method to cast the voted selections.</p> <p><i>Expected:</i> The precinct tabulation device advances to the “Ballot Review” screen. After review, the ballot is cast successfully.</p> <p><i>Actual:</i></p>
<b>1090</b>	<p>Repeat steps 1010- 1080 excluding step 1050 for each precinct.</p> <p><i>Expected:</i> Repeat 1010 _____  Repeat 1020 _____  Repeat 1030 _____  Repeat 1040 _____  Repeat 1060 _____  Repeat 1070 _____  Repeat 1080 _____</p> <p><i>Actual:</i></p>

<p><b>1080</b></p>	<p>Close the polls and print the closed polls report tape.</p> <p><i>Expected:</i> The polls closed and a report is printed.</p> <p><i>Actual:</i></p>
<p><b>1090</b></p>	<p>Review the closed polls report to ensure all selections input above are recorded and reported correctly.</p> <p><i>Expected:</i> The closed polls report presents the accumulated totals for the selections input above.</p> <p><i>Actual:</i></p>
<p><b>Criteria for Evaluation of the Test Results:</b> The intended selections input above are recorded, stored, and reported as input by the tester. The voter access cards are accepted and display the proper ballot style and cannot be reused.</p>	



<b>Test Case Identifier:</b> Cardwriter Functional Verification (Closed Primary Election)	
<b>Functional Requirements:</b>	The Express Poll 5000 card writing functionality must be able to program voter access card media with the proper keys to allow for ballot styles based on geographical subdivisions and party affiliation to properly be retrieved and presented to a voter in a Closed Primary Election
<b>Test Objective:</b> To determine if the card writer functionality of the Express Poll 5000 can properly write smart cards for voter access for one time use.	<b>Test Configuration:</b> Precinct tabulation device configured as described for normal election day operation by Pennsylvania procedures and/or the device manufacturer. A TSx unit will be loaded with all precincts and parties from the “Pennsylvania Certification Closed Primary Election.”
<b>Test Equipment:</b>	Express Poll 5000, 10 voter access cards, TSx units
<b>Special Procedural Requirements:</b>	None
<b>Assumptions:</b>	None
<b>Step</b>	<b>Description</b>
<b>1000</b>	From the Express Poll unit, encode one voter access card for each party and each precinct in the Closed Primary Election.  <i>Expected:</i> The voter access cards can be programmed.  <i>Actual:</i>
<b>1010</b>	Insert the Democratic voter access card for Precinct 1 into the TSx.  <i>Expected:</i> The TSx accepts the voter access card and displays the ballot style for Democratic party for Precinct 1.  <i>Actual:</i>
<b>1020</b>	Use the designated method to advance through the ballot. Observe the contests and candidates for Democratic party for Precinct 1 ballot style are displayed  <i>Expected:</i> All contests and candidates are accurately displayed.  <i>Actual:</i>
<b>1030</b>	Use the designated method to navigate to the first contest and select the first candidate.  <i>Expected:</i> The TSx navigates to the first contest and the selection for the first candidate is input.  <i>Actual:</i>
<b>1040</b>	Use the designated method to advance the “Ballot Review.” Observe the “Ballot Review” to see if the above selections are indicated. Use the designated method to cast the voted selections.  <i>Expected:</i> The precinct tabulation device advances to the “Ballot Review” screen. After review, the ballot is cast

	<p>successfully.</p> <p><i>Actual:</i></p>
<b>1050</b>	<p>Remove the ejected voter access card or use the designated method to remove the used voter access card. Reinsert the used voter access card.</p> <p><i>Expected:</i> The TSx should give an indication that the voter access card has been used.</p> <p><i>Actual:</i></p>
<b>1060</b>	<p>Insert the Republican voter access card for Precinct 1 voter access card into the TSx.</p> <p><i>Expected:</i> The TSx accepts the voter access card and displays the ballot style of Precinct 1.</p> <p><i>Actual:</i></p>
<b>1070</b>	<p>Select the first candidate in every “1 of 1” race, the first N in every “N of M” race, and “Yes” for every Referendum race.</p> <p><i>Expected:</i> Every candidate can be input as described.</p> <p><i>Actual:</i></p>
<b>1080</b>	<p>Use the designated method to advance the “Ballot Review.” Observe the “Ballot Review” to see if the above selections are indicated. Use the designated method to cast the voted selections.</p> <p><i>Expected:</i> The precinct tabulation device advances to the “Ballot Review” screen. After review, the ballot is cast successfully.</p> <p><i>Actual:</i></p>
<b>1090</b>	<p>Repeat steps 1010- 1080 excluding step 1050 for each precinct.</p> <p><i>Expected:</i> Repeat 1010 _____  Repeat 1020 _____  Repeat 1030 _____  Repeat 1040 _____  Repeat 1060 _____  Repeat 1070 _____  Repeat 1080 _____</p> <p><i>Actual:</i></p>
<b>1080</b>	<p>Close the polls and print the closed polls report tape.</p>

	<p><i>Expected:</i> The polls closed and a report is printed.</p> <p><i>Actual:</i></p>
<p><b>1090</b></p>	<p>Review the closed polls report to ensure all selections input above are recorded and reported correctly.</p> <p><i>Expected:</i> The closed polls report presents the accumulated totals for the selections input above.</p> <p><i>Actual:</i></p>
<p><b>Criteria for Evaluation of the Test Results:</b> The intended selections input above are recorded, stored, and reported as input by the tester. The voter access cards are accepted and display the proper ballot style and cannot be reused.</p>	

<b>Test Case Identifier:</b> BridgePoint v. 1.5.0.0 Analysis	
<b>Functional Requirements:</b>	BridgePoint software imports the GEMS database, loads the election files for the ExpressPoll 5000, and imports audit logs from the ExpressPoll 5000.
<b>Test Objective:</b> This test will focus on the interfacing points of the BridgePoint software and the ExpressPoll 5000 to ensure the software functions as expected and does not adversely affect operation of the ExpressPoll 5000.	
<b>Test Configuration:</b> The BridgePoint software will be loaded on a laptop/PC.	
<b>Test Method:</b> The method for testing these requirements is defined below. The test steps that will be followed to evaluate the BridgePoint software generally will be: <ul style="list-style-type: none"> <li>• Verify the version of the software.</li> <li>• Import election files from the GEMS server.</li> <li>• Program the election compact flash for the ExpressPoll 5000.</li> <li>• Verify the ExpressPoll 5000 is able to function as designed.</li> <li>• Verify audit log retrieval .</li> <li>• Evaluate other features and functions within the application.</li> </ul>	
<b>Criteria for Evaluation of the Test Results:</b> The BridgePoint software is able to import the election files, program the election onto a compact flash that can be read by the ExpressPoll 5000.	
<b>Comments:</b>	
Tester Approval: _____ Date: _____	
Test Witness: _____	