COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF STATE

AMENDED REPORT OF THE
EXAMINATION RESULTS OF
THE ELECTION SYSTEMS AND SOFTWARE, INC.
IVOTRONIC TOUCHSCREEN VOTING SYSTEM
WITH UNITY SOFTWARE

Issued by:

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Secretary of the Commonwealth
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EXAMINATION RESULTS OF
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AN AMENDED REPORT BY THE SECRETARY
OF THE COMMONWEALTH OF PENNSYLVANIA

I. INTRODUCTION

Article XI-A of the Pennsylvania Election Code, 25 P.S. § 3031.1 et seq., authorizes the use of electronic voting systems. Section 1105-A of the Election Code, 25 P.S. § 3031.5, requires all electronic voting systems to be examined and approved by the Secretary of the Commonwealth before use in any election in Pennsylvania.

Upon the request for an examination of the iVotronic Direct Recording Electronic Voting System, version 9.1.2.0 with Unity, Election Management Software, version 3.0, (hereinafter referred to as the “System”) made by Election Systems and Software, Inc. (ES&S), the Department of State (Department) scheduled an examination of the System for November 16 and 17, 2005. The Department has received confirmation from SysTest Labs, a federally recognized independent testing authority (ITA) that the System’s hardware and software have successfully completed qualification testing in compliance with the Federal Election Commission 2002 Voting System Standards.

The Secretary of the Commonwealth retained Michael Ian Shamos, Ph.D., J.D., as a consultant to conduct an electronic voting system examination on November 16 and 17, 2005. Harry A. VanSickle, Commissioner of the Bureau of Commissions, Elections and Legislation; Kenneth A. Rapp, Deputy Secretary for Regulatory Programs; Larry Boyle, Deputy Chief Counsel; Chet Harut, HAVA Administrator; Lindsley Houser, HAVA Assistant; Jim Criss, Bureau of Management Information Systems and Jonathan Marks, Chief of the Division of Elections/Precinct Data; represented the Secretary of the Commonwealth.

On December 22, 2005, the Secretary of the Commonwealth certified the iVotronic for use in elections in the Commonwealth of Pennsylvania, in accordance with Section 1105-A of the Election Code, 25 P.S. § 3031.5 and issued a report entitled EXAMINATION RESULTS OF THE ELECTION SYSTEMS AND SOFTWARE, INC. iVotronic TOUCHSCREEN VOTING SYSTEM WITH UNITY SOFTWARE. As stated in the conclusion of the December 22, 2005 certification report, the Secretary based his decision on the results of the examination conducted on November 16 and 17, 2005, as well as consultation with the Department’s staff and consultant.
Since the certification on December 22, 2005, ES&S has modified the iVotronic and Unity software, and requested a demonstration of the iVotronic touch screen voting system, version 9.1.4.1 and Unity software, version 3.0.1.0 (hereinafter referred to as the "modified System.") The Department scheduled a demonstration for March 28, 2006. Based on the changes demonstrated on March 28, 2006, the Secretary of the Commonwealth amends the original certification of the ES&S iVotronic and Unity Software, as detailed in the Conclusion in Section V of this amended report.

II. NECESSITY TO REVIEW AND AMEND THE IVOTRONIC AND UNITY CERTIFICATION REPORT

Presented for examination on November 16 and 17, 2005 was the ES&S iVotronic, version 9.1.2.0, updated before that examination to version 9.1.3.0 and Unity software, version 3.0.

The Secretary of the Commonwealth had the following conditions and recommendations contained in his December 22, 2005 report. A thorough explanation of the conditions and recommendations can be found in the December 22, 2005 report.

Conditions

1. The iVotronic continuous roll VVPAT must be disabled prior to being delivered to Pennsylvania counties because it violates the Pennsylvania Constitution and the Election Code.

2. Pennsylvania counties purchasing the ES&S System may not use the ES&S provided modems to transmit official or unofficial election results.

3. Pennsylvania counties must change the default passwords upon receipt of this System.

4. Unity must be operated as a standalone system without network connection, local or otherwise.

5. Pennsylvania counties purchasing the iVotronic must be instructed to install iVotronic flash cards at the warehouse and seal them into the voting units.

6. A checklist must be prepared by ES&S, in consultation with the Department, to be furnished to any Pennsylvania county upon delivery of the System, detailing the selectability of each option when setting up an election.
Recommendations

The Secretary of the Commonwealth suggests the following recommendations for future versions of the iVotronic:

1. The Secretary recommends that the iVotronic be reconfigured to produce an onboard zero tape at each machine. The Secretary reminds counties that they must print, sign and post each zero tape at the opening of the polls, pursuant to the requirements found in Sections 1110(g) of the Election Code, 25 P.S. § 3031.10(g), and 1209(b)(1), 25 P.S. § 3049(b)(1).

2. The Secretary recommends all user-tamperable connections on iVotronic must be removed or protected with a locking mechanism.

3. The Secretary recommends that passwords be required for all Unity modules.

4. The Secretary recommends that counties continue to change their passwords after every election.

5. The Secretary recommends that a prominent under-vote warning should be given to the voter before he or she advances to a new screen.

Subsequent to the certification on December 22, 2005, ES&S discovered an error in the iVotronic firmware that, under certain conditions, causes write-in ballot positions not to be displayed on the ballot. ES&S has repaired the error and resubmitted the iVotronic and Unity for testing at SysTest Labs, a federally recognized independent testing authority (ITA). On February 10, 2006, SysTest confirmed that ITA testing has been successfully completed for the iVotronic, version 9.1.4.1 and Unity Software, version 3.0.1.0. On March 28, 2006 ES&S demonstrated the new versions of the iVotronic and Unity to the Department and its consultant, Dr. Shamos.

The consultant voted the 12-ballot Municipal and Primary Election test on the iVotronic. The iVotronic correctly tabulated both tests, thereby satisfying the Pennsylvania Election Code. Although the modified System accurately tabulated the results of the test, based on the results of the demonstration, including the answers to questions provided by the vendor and the advice provided by the Department’s consultant, the Secretary of the Commonwealth offers the following conditions and recommendations for the modified System. The new conditions and recommendations are in addition to those found in the December 22, 2005 report.

- The default font size for display of write-in candidate names should be small enough to allow the full names to be displayed. When casting a write-in vote, the consultant was unable to see the name of the candidate because only the first five letters could be displayed. This is problematic because the voter has no way to review the name of the person he or she has voted for because only the first few letters of the name are visible. The only possibility is to cancel the write-in vote and re-enter the name, but then there is still no way to verify that the name is correct the second
time. The Secretary of the Commonwealth requires that ES&S instruct counties to change the font size for write-in votes when setting up an election. The Secretary of the Commonwealth also recommends that future versions of the iVotronic be changed so that the default font size for write-in votes is small enough to ensure that the entire name of the voter’s choice will appear following a write-in vote.

- If voting extends past the time preset during election setup for the polls to close, each time the iVotronic is activated for a voter, the district election official is given the opportunity to close the polls by hitting a single area on the touchscreen. This action, if taken, is irrevocable and subsequent voters will not be able to vote on the machine. The Secretary of the Commonwealth recommends that a warning message be displayed asking the district election officials if they are sure they would like to close the polls if they inadvertently hit the “close the polls” button. (This situation could occur if voters are in line to vote before 8:00 P.M. on election night, but do not have the opportunity to cast a ballot until after 8:00 P.M.)

III. CONDITIONS FOR CERTIFICATION

The Secretary of the Commonwealth certifies the modified System in accordance with the conditions detailed in the report dated December 22, 2005 and the following additional condition:

1. The Secretary of the Commonwealth requires ES&S to instruct counties to change the font size for write-in votes when setting up an election.

IV. RECOMMENDATIONS

The Secretary of the Commonwealth reaffirms the recommendations detailed in the report dated December 22, 2005 and suggests the following additional recommendations for future versions of the iVotronic and Unity software:

1. The Secretary of the Commonwealth recommends that a warning message be displayed asking the district election officials to confirm that they would like to close the polls if they inadvertently hit the “close the polls” button.

2. The Secretary of the Commonwealth also recommends that the iVotronic be changed so that the default font size for write-in votes is small enough to ensure that the entire name of the voter’s choice will appear following a write-in vote.
V. CONCLUSIONS

As a result of the examination conducted on November 16 and 17, 2005 and the demonstration held on March 28, 2006, and after consultation with the Department’s staff and consultant, certification of the iVotronic touch screen voting system, version 9.1.4.1 and Unity software, version 3.0.1.0 has been reaffirmed, reflecting the new version numbers, by the Secretary of the Commonwealth for use in elections in the Commonwealth of Pennsylvania in accordance with Section 1105-A of the Election Code, 25 P.S. § 3031.5, **provided it is implemented with the condition listed in Section III of this amended report and the conditions listed in the December 22, 2005 report.** The System will accommodate no more than 300 voters per unit.

In addition, pursuant to the Directive on Electronic Voting Systems issued by the Secretary of the Commonwealth on July 22, 2005 and to Section 1105-A(d) of the Pennsylvania Election Code, 25 P.S. § 3031.5(d) this certification is valid for only the System discussed in this amended report. If the vendor makes *any* changes to the System subsequent to the date of its examination, it must *immediately* notify both the Pennsylvania Department of State and the relevant federal ITAs, or their successors. Failure to do so may result in the decertification of this voting System in the Commonwealth of Pennsylvania.

All jurisdictions implementing this System for use must comply with the conditions found in this report, previous reports for the same system and any directives issued by the Secretary of the Commonwealth regarding the use of this System, in accordance with Section 1105-A(a-b) of the Election Code, 25 P.S. § 3031.5(a-b).