



October 02, 2007

State of New Jersey  
Office of the Attorney General  
Department of Law and Public Safety  
25 Market St.  
Trenton, New Jersey 08625-0080

Attention: Donna Kelly, DAG

**RE: New Jersey Institute of Technology Report Concerning Election Systems and Software iVotronic w/ RTAL VVPRS**

Dear Ms. Kelly,

In this letter, Elections Systems and Software (ES&S) would like to address the inaccuracies in the New Jersey Institute of Technology's (NJIT) Report to the Office of the Attorney concerning "Election System & Software iVotronic w/ RTAL System Assessment". Due the limiting timeline, the following comments are limited and in no way reflect all of ES&S' responses to the items in the NJIT report. ES&S will continue to analyze the NJIT report and provide a complete and final response after our legal council is able to review said document.

The following is a preliminary response to each of the 12 exceptions to ES&S' compliancy to the New Jersey Criteria for the VVPRS:

**Exception 1:** References 8 criteria from the New Jersey Criteria for the VVPRS and provides three observations regarding the ES&S system. The report does not state specifically which of these 8 areas ES&S is deficient.

**Bullet Point #1** - When using the Real Time Audit Log, the process of accepting or rejecting the ballot contents at the end is not required because the voter immediately has the opportunity, upon making a selection, to verify that their selection or deselection has been registered to the paper properly. The voter has the opportunity to review, accept or reject each of their selections throughout the voting session. Once a voter has made all of their selections, they then have another opportunity to review all of the selections from the Summary screen. A voter is able to change any selection an unlimited number of times. Every action or alteration is registered to the printout in real time.

While there is a printed vote summary, this vote summary is not intended for voter review purposes. This summary is printed for purposes of recount, not voter review.

**Bullet Point #2** - An undervote is not committed until the ballot has been cast. The voter is provided a visual notification for each selection or deselection made. This action is also recorded to the Real Time Audit Log. Therefore, the voter is provided two points of verification for every action, making the voter aware of their choices in real time. Also, at the end of the ballot, the voter is provided a summary of their selections. Any contest without a selection provides a red warning message. A voter is able to reenter the contest at this point and select an option if they wish. None of the cited criteria specifies a requirement for a list of undervoted contests to be printed and then reviewed. The criteria only require that voter selections are printed for review. The ES&S Real Time Audit Log satisfies these criteria.

**Bullet Point #3** - The voter is able to alter any selections up to the point when the ballot is cast by pressing the vote button. This action is the equivalent to submitting a paper ballot into the ballot box. After which, the ballot has been cast and it is illegal to alter the ballot. As stated earlier, the printed ballot summary is not intended for voter review purposes. Rather, each voter activity is printed for the voter review purpose. The ability to review a printed record of the selection is provided, and the voter has the ability to make changes prior to casting the ballot, as the criteria specify.

*Maintaining Voter Confidence. Enhancing the Voting Experience.*



**Exception 2:** References 4 criteria from the New Jersey Criteria for the VVPRS and provides one observation regarding the ES&S system. The report does not state specifically which of these 4 areas ES&S is deficient.

Voter privacy is provided via the combination of system configuration, polling place set up and polling place procedures. Standard voting procedures prevent loitering near voting stations. If proper procedures are not executed, and polling places are set up incorrectly, and / or observers are allowed to stand behind or next to voters, any voting system would be at risk of compromising voter privacy. The iVotronic with RTAL printer provides sufficient privacy for voting when setup properly, such as having the voter's back and the iVo screen facing a wall. The NJIT's observation is unrealistic in a real world environment.

**Exception 3:** References 3 criteria from the New Jersey Criteria for the VVPRS and provides one observation regarding the ES&S system. The report does not state specifically which of these 3 areas ES&S is deficient.

The time and date that an individual votes is irrelevant to the voting process and should not be recorded at the polling station. If practical practices are followed, no tie can be established between the paper record on the RTAL and the poll book.

The time and date stamp has been removed from the RTAL printout in subsequent firmware releases which are undergoing federal testing at this time.

**Exception 4:** References the New Jersey Criteria for the VVPRS concerning the amount of paper the audit printer should contain.

The NJIT's assertion that the RTAL paper roll lasts for 120 votes is subjective and misleading. The amount of paper used by a voter will vary based on vote activity (number of selections/deselections) and length of ballot. Therefore, the amount of voters per roll of paper varies from election to election, and from voter to voter. Additionally, the Regulations do not state that the paper roll must accommodate 750 votes.

**Exception 5:** References 5 criteria from the New Jersey Criteria for the VVPRS and provides 2 observations regarding the ES&S system. The report does not state specifically which of these 5 areas ES&S is deficient.

The NJIT's first observation is a point in favor of ES&S' compliancy to the criteria. The ES&S RTAL printer is secured behind a lock and key mechanism, and can be sealed, as mandated by the Criteria. The NJIT notes the existence of the key in this observation but does not note that seals can also be utilized.

The NJIT's second observation is false, in that the RTAL system can be easily tampered or disconnected. In accordance with Criteria V.E, the RTAL printer connection to the iVotronic can be secured with the use of security seals. In addition, if the VVPRS is disconnected from the iVotronic, the voting session is halted and will not be resumed until after it is connected. No further selections or ballots cast are possible, while the VVPRS is disconnected and in this halted state. Once reconnected, further activity performed by the voter will be allowed, and recorded on the VVPRS.

**Exception 6:** References the New Jersey Criteria for the VVPRS that a printer shall have a low paper indicator and should allow for the timely addition of paper.

The RTAL printer is fully compliant with the referenced criteria. The RTAL has a low paper indicator. Once low paper is detected, the iVotronic screen will prompt a message for the poll worker to replace the paper roll before further voting is allowed.

If the paper becomes low during a voting session, then a screen message is also displayed. At this point a poll worker is able to easily, and quickly change the paper roll. The appointed staff that has the key, must



remove the security seals, unlock the door, remove the used roll and insert the new roll. They then would lock the door, apply a new security seal and begin a new voting session for the voter. Proper documentation and procedures should be maintained during the removal and reapplication of security seals.

In addition, paper rolls can be ordered which provide a visible continuous mark on the paper roll (like on a cash register receipt) that begins to show up when the paper roll is nearing its end.

**Exception 7:** References the New Jersey Criteria for the VVPRS that dictates the font size on the printout.

The NJIT's observation is inaccurate. By holding the magnification device at varying lengths from the printout, a much wider range of font sizes can be achieved. The required 6.3-9.0 mm font size can be achieved with the magnification device.

**Exception 8:** References 2 criteria from the New Jersey Criteria for the VVPRS and provides 1 observation regarding the ES&S system. The report does not state specifically which of these 2 areas ES&S is deficient.

As noted by the NJIT, the ballot image and RTAL printout can be linked. ES&S does not currently provide documentation on this procedure since it is not a typical process, and knowledge on accessing data sectors on the compact flash card should be carefully protected and executed by only authorized personal. ES&S can provide documentation on the process. The EIN number is the link. But it is not an ascending sequential index. Rather it is an index created by a proprietary random selection algorithm. Unity ERM ballot image reports are available to assist in the identification and reconciliation of the VVPRS and the electronic ballot image record.

**Exception 9:** References 3 criteria from the New Jersey Criteria for the VVPRS and provides 1 observation regarding the ES&S system. The report does not state specifically which of these 3 areas ES&S is deficient.

Paper jam, paper low, and other printer or paper issues are detected by sensors in the printer. If the VVPRS is maintained and loaded correctly the sensors pass on the condition to the DRE, which will appropriately handle the condition. The DRE will stop printing, halt the voting sessions, and issue the necessary warning and instructional messages for voter and poll workers to act on.

**Exception 10:** References 2 criteria from the New Jersey Criteria for the VVPRS and provides 1 observations regarding the ES&S system. The report does not state specifically which of these 2 areas ES&S is deficient.

The error message produced as a result of disconnecting the printer after the vote has been cast, while the printer is generating the vote summary, can be reworded in order to convey the issue without causing any confusion for the voter or supervisor. The error message, referenced by the NJIT, requires that the supervisor insert the PEB. This is accompanied by a series of beeps which notify the poll worker that an issue has occurred. Poll workers are instructed in training when their interaction is required at the voting terminal. If a voter removes the printer connection while the vote summary is being printed, a poll worker will hear the error notification beep and at that point would approach the machine.

Currently, the error message reads as follows:

“The paper ballot printer has malfunctioned.

Your ballot will be cancelled.

Please ask your poll worker for assistance.”

The intention of notifying the voter that their ballot will be cancelled is to notify them that their paper ballot record will not be cast. As indicated by the NJIT, the electronic record is cast properly. ES&S will alter the wording of the error message in subsequent releases in order to properly convey the situation.



**Exception 11:** This exception can not occur when proper polling security procedures are followed. The PEBs are to only be distributed to authorized personal. The scenario presented in exception 11 would be the equivalent of a person being granted unsupervised access to numerous paper ballots. The advantage of the iVotronic DRE system over paper ballots is that the iVotronic creates an audit of all ballots cast. A review of the audit could reveal any illegal activity, i.e. ballots cast when the machines were not supposed to open. In order to cast ballots, the machine would need to be opened for voting, at which point, numerous polling station staff would be present, and a person would not have private access to a machine.

Only PEBs programmed for the election loaded on the DRE will grant access. If an individual obtains a PEB from another polling location or previous election, the PEB is unusable. The PEBs and the iVotronic contain Election Qualification Codes (EQC) and an encrypted Election Key. Only a PEB whose EQC code and election key matches the iVotronic allows access to the system. This prevents vote tampering from outside sources.

The iVotronic can be set up to work in one of two distinct modes. Voter activation mode PEBs will not allow multiple reactivations, as suggested by the NJIT report. The second mode of activation is managed using Poll worker activation mode PEBs. These PEBs are not handed to or handled by voters. They are only carried by the poll workers, who activate voting sessions once per voter, just like poll workers who hand out only one paper ballot per voter. The risk of a poll worker activating multiple voting sessions fraudulently is just the same as a poll worker handing out multiple paper ballots fraudulently. Both activities must be monitored via polling place procedures, and checks and balances, such as comparing ballots cast (the public counter on the DRE) with the count of voters derived from polling place and poll book desk procedures. Such checks and balances can be used throughout the Election Day as well as in canvassing procedures performed after polls are closed.

**Exception 12:** The condition stated in exception 12 has not been witnessed by ES&S. The comments made by NJIT are very unspecific. More information is necessary to understand the condition of the NJIT observation. It is very likely that the NJIT reviewer did not follow correct operating procedures, or a standard warning message was provided due to a normal condition, such as the advent of the predefined poll closing time.

ES&S was not allowed to participate in the review of our system, and we were unable to provide feedback that may have resolved these issues. We look forward to discussing these issues on October 10<sup>th</sup>.

Sincerely,

Kevin Kerrigan  
International/State Certification Manager