



**U. S. Election Assistance Commission**  
VOTING SYSTEM TESTING AND CERTIFICATION PROGRAM  
1201 New York Avenue, NW, Suite 300  
Washington, DC. 20005

**Testimony of Brian J. Hancock for the Presidential Commission on Election  
Administration  
Cincinnati, Ohio - September 19, 2013**

Commissioners,

Thank you for this opportunity to provide testimony to the Presidential Commission on Election Administration. My name is Brian Hancock and I've been working in the field of election administration over 23 years.

From 1984 to 2003, I served on the staff of the Federal Election Commission (FEC) and for the last thirteen of those years; I served as an Elections Research Specialist in the FEC's Office of Election Administration. My primary duties involved providing assistance and guidance to State and local election administrators throughout the United States. I also edited *The FEC Journal of Election Administration*, and authored several essays describing the foundations, development and organization of electoral bodies in the America; and co-authored *Implementing the National Voter Registration Act of 1993: Requirements, Issues, Approaches, and Examples*. I have served on the staff of the U.S. Election Assistance Commission (EAC) since its establishment under the Help America Vote Act (HAVA) in 2003. As Director the Testing and Certification Division, my programmatic areas of responsibility include overseeing the EAC's efforts in testing and certifying voting systems, working with the National Voluntary Laboratory Accreditation Program (NVLAP) of NIST to accredit independent testing laboratories, and developing and maintaining the EAC's Voluntary Voting System Guidelines.

My testimony today will not focus on the mechanics of conformity assessment and product certification, but instead will focus on some of the value added functions of our program related to voting system certification and finish with an assessment of new voting system technology.

Although the day-to-day work of certification (working with labs and manufacturers, reading, reviewing and commenting on voting system test plans, test cases and test reports) is what we talk about most often, I feel that some of the less well known aspects of our program have the greatest potential to increase the overall quality of voting systems both now and in the future.

## *Quality Monitoring Program*

EAC's Quality Monitoring Program provides an additional layer of quality control by allowing the EAC to perform manufacturing site reviews, to carry out fielded system reviews, and to gather information on voting system anomalies from election officials. These tools help ensure that voting systems continue to meet the requirements of voting system standards as the systems are manufactured, delivered, and used in Federal elections.

Facilities that produce certified voting systems are reviewed periodically, at the discretion of the EAC, to verify that the system being manufactured, shipped, and sold is the same as the sample tested and certified. All registered Manufacturers must cooperate with such audits as a condition of program participation. At a minimum, at least one manufacturing facility of a registered Manufacturer shall be subject to a site review at least once every 4 years. As of this date the EAC has conducted 2 manufacturing facility reviews of the Unisyn Voting Solutions facility in Vista, California, and one review of ES&S – Ricoh Electronics, Inc. facility, Tustin, California. The EAC is in the process of scheduling a review of the Dominion Voting Systems facility in Texas.

As another means of gathering data, the EAC collects information from election officials who field EAC-certified voting systems. Information on actual voting system field performance is a basic means for assessing the effectiveness of the Certification Program and of the quality of the manufacturing process. The EAC provides mechanisms for election officials to provide real-world input on voting system anomalies via the Voting System Reports collection published at [eac.gov](http://eac.gov) and through regular direct contact with Certification Division staff at in-person meetings and both email and telephone contact.

The final prong in our quality management program is our process of fielded system review and testing. Upon invitation or with the permission of a State or local election authority, the EAC may, at its discretion, conduct a review of fielded voting systems. Review may include the testing of a fielded system, if deemed necessary. Any anomalies found during this review and testing are provided to the election jurisdiction, the Manufacturer and any other jurisdiction using the affected system.

Our experience with Cuyahoga County, Ohio is an excellent example of a real-world application of this part of our quality management program. During County pre-election logic and accuracy (L&A) testing prior to the May 4, 2010 Primary Election, the ES&S DS200 demonstrated intermittent screen freezes, system lockups and shutdowns. The EAC was notified of the anomaly before the Primary election and contacted Cuyahoga County and other jurisdictions that use the same system, as well as ES&S to gather information. After determining that the information related to the freeze/shutdown issue was valid, the EAC opened an Informal Inquiry into the issue. EAC staff had numerous discussions with Cuyahoga County, ES&S, and the Voting System Test Lab for the Unity 3.2.0.0 system. In addition, in order to determine the potential extent of the problem, EAC also contacted other jurisdictions using the DS200

including, Orange, Miami-Dade, Escambia, Clay, Collier and Pasco Counties in Florida, the Wisconsin Government Accountability Board and the New York State Board of Elections. A Formal Investigation initiated in February 25, 2011, and the EAC issued its final Formal Investigation Report with recommendations, including a recommendation for decertification of the system, on December 20, 2011. The manufacturer withdrew its system from certification prior to the completion of the decertification process on August 3, 2012. The manufacturer ultimately resolved the issues to the system through a rigorous root cause analysis and mitigation which was eventually tested by a VSTL and certified by the EAC.

### *Efforts to Streamline the Certification Program and to Provide Additional Assistance to State Certifiers*

Since the initiation of the testing and certification program, the EAC practiced incremental improvement in response to comments and concerns raised by voting system manufacturers, test labs and the public. The EAC continues to respond to both real and perceived criticisms of our current process. These criticisms have included:

- *Time* –Testing still takes too long.
- *Cost* – Testing remains too expensive.
- *Relevance* – Time and cost factors may contribute to State and local jurisdictions seeking alternatives to this process in order to run effective elections, even though they may support the EAC program in principle.

Since 2009, the EAC has initiated a number of specific programmatic changes to address these criticisms.

- Weekly teleconferences with voting system manufactures and test labs for each major voting system test campaign. These telecons provide all parties an opportunity to get ongoing and timely updates and allows early discussion and resolution of issues that may come up during testing.
- Adoption of standardized response timeframes for EAC staff and technical reviewers to comment on issues in both test plans and test reports.
- Expansion of the de minimus change definition permit the replacement of **equivalent** laptops, desktops, servers, printers, keyboards, mice, monitors (defined as a display device attached to a PC for election management use), power cables, Ethernet cables, speakers and microphones supporting the election management system of EAC certified voting systems.
- Pushing manufacturers to have their systems *completely* ready for testing before they begin test campaigns at EAC VSTLs. In the past, voting system manufacturers have begun test campaigns with VSTLs before all components and documentation for the system were delivered to the test lab. Discussions and work with all parties involved have eased this problem.

Additional process changes are under consideration to further reduce testing time and cost.

We believe that voting system manufacturers and election officials could get greater value and efficiency concentrating limited resources by changing the testing process to shift the time and associated cost burden of technical data package (TDP) review, Source Code Review and Hardware Testing out of the VSTLs and back to the manufactures. The implementation of Manufacturer/Supplier Declaration of Conformity (DoC) (*First Party Attestation*) is one way of accomplishing this. Declaration of Conformity is used successfully in many industries, and ISO/IEC 17050 specifies requirements applicable when the manufacturer provides a declaration that a product, process, or management system is in conformity with normative documents such as standards, guides, (such as the VVSG) technical specifications, laws and regulations. In implementing manufacturer DoC, the EAC would ask voting system manufacturers to provide a signed DoC for the VVSG requirements related to TDP, Source Code and Hardware Testing. This would allow manufacturers to test to VVSG requirements of these areas either in-house, or in the case of hardware requirements, at another accredited third party test lab in order to save VSTL time and cost.

All of our efforts noted above of course have the additional benefit of assisting State and local election administrators by getting voting systems into the marketplace at a more rapid pace. The Certification Division has also recently undertaken one very specific initiative aimed at providing very direct assistance to State officials charged with certifying voting equipment.

On September, 12, 2013, the EAC began the first phase of our roll-out of our Engineering Change Order (ECO)<sup>1</sup> database for State users. The ECO Database is a separate secure part of the larger EAC Virtual Review Tool web application. This tool was developed in-house by EAC staff as a better way to handle our test matrix of the over 1200 requirements of the Voluntary Voting System Guidelines (VVSG), initially laid out in a giant excel spreadsheet. The web application allowed easier input and tracking of all relevant information and eliminated document versioning problems of the spreadsheet. The EAC is making the ECO portion of the database available to State Election Officials to be used as the one nationwide portal through which States can systematically track all changes to certified voting systems. We strongly believe that the database will save time and money by enabling States to more quickly and efficiently approve engineering changes to certified voting systems. This will be possible by now having information for all certified systems used in the State available in one place, allowing

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<sup>1</sup> An engineering change order is a formal proposal for an alteration to a product; in our case, to a voting system. All change orders in the EAC database are by definition de minimis. The *EAC Testing and Certification Program Manual (Manual)* defines a de minimis change as a change to a certified voting system's hardware, the nature of which will not materially alter the system's reliability, functionality, capability, or operation. The EAC has also identified additional items that are potentially eligible for being declared as a de minimis change under the program. We also permit the replacement of **equivalent** laptops, desktops, servers, printers, keyboards, mice, monitors (defined as a display device attached to a PC for election management use), power cables, Ethernet cables, speakers and microphones supporting the election management system of EAC certified voting systems. Changes that do not meet these qualifications are considered modifications to a previously certified voting system, and subject to a more rigorous test campaign.

staff to save valuable time searching for ECO documents and information by calling labs, EAC, manufacturers for information.

### *The Future of Voting Technology*

It would be wonderful if we could discuss future voting technology by pointing to some radical new technology or device that would solve all of our voting related problems, from long lines to verifying identity. Unfortunately I don't see any such radical technological development in the near future for elections. To my way of thinking, this is actually a *good* thing. I'm not sure that we ever want election administration exploring the boundaries of technology. New technology often fails, and failure in elections is too high a price to pay for simply experimenting with new technology. What we are seeing, and will continue to see, are implementations of existing technologies that might be new for the field of election administration.

All of this is not to say that progress is nonexistent in the voting systems arena. In fact, some really exciting developments are taking place at this very moment. The Commission has already heard from Dean Logan of Los Angeles County at a previous hearing, and we have heard from Dana DeBeauvoir of Travis County earlier this afternoon. Both of these individuals are working on exciting projects, and I have the privilege of being a small part of Dean's work as a member of the LA County VSAP Technical Advisory Committee. From my perspective, the really innovative aspect of this work is not the technology itself, but the process. The LA County project is breaking new ground in the way voting systems are procured. VSAP takes a participatory approach to system development and procurement. The Advisory Committee is made up of local experts and key constituencies including the disabled community, language and ethnic minorities, political parties, poll workers, voters and academics. In addition the development/procurement process is based on desirable characteristics of a system, and not bound by the constraints of current marketed products. These characteristics of the system include mobility, security, usability AND accessibility, flexibility, maintainability, auditability and cost effectiveness. All of us in the voting technology area eagerly await the outcome of this project and the effect that it might have on future system development efforts.

For the first time in my experience, we are also seeing real progress in the areas of usability and accessibility. Even though the Help America Vote Act (HAVA) required voting systems to be accessible for all types of disabilities, the reality has often not met these laudable goals. Paper handling was always a major issue and early generation ballot marking devices allowed touch screen interaction for the disabled, but still forced individuals with visual and dexterity limitations to somehow get the ballot from the ballot marking device to the actual ballot box. New voting systems are integrating the ballot marking device with the ballot box to solve this issue. We are now also seeing voting system manufacturers design systems with usability for both voters and poll workers. We see an increasing use of the Design for Democracy templates for both the design of paper ballots as well as the design of user interfaces for voting devices and election management systems.

Finally, I do see some potential for introducing technological developments into elections that have been perfected for other industries. One example of this is tablet devices that are used in the medical industry. Because of the rigorous security and privacy demands of that industry, tablet implementations have been introduced with innovations that may have implications for the voting industry such as hot swap batteries with up to 6.5 hours of battery life. These tablets also contain anti-theft, encryption and performance management functions to optimize performance. I would be very interested to see some of these devices piloted with configurations that would allow them to be used in elections.

Thank you for this opportunity to testify before this Commission. I look forward to answering any questions you may have regarding certification and election technology.