EAC Public Meeting & Hearing June 30, 2005 New York
Consideration of Proposed Voluntary Voting System Guidelines (VVSG)
Comments on New Material – Carolyn Coggins Director of ITA Services, (NASED Accredited Hardware and Software Independent Test Authority)

Thank you for inviting me here today to provide comments on the proposed Voluntary Voting System Guidelines. I will address the proposed security and human factors requirements.

First let me say that it is my perception that in view of the HAVA January 2006 deadline a significant concern of the states and vendors is how these proposed Guidelines stack up against the current testing of accessibility to the 2002 standards.   We understand that these Guidelines are only out for comment and may change. My comments here are meant to bring a basic insight into these differences. In saying that there are some caveats.

First, this release was made available late last week. These comments are based upon a preliminary review of the Guidelines and should not be considered completely researched.

Second, there has been no peer review of these comments. These are my interpretation of the Guidelines and should not be consider a definitive assessment or formal gap analysis.

Third, in identifying these differences it does not mean that systems qualified to the Federal Election Commission Voting System Standards, April 2002 do not contain some of these required features. It means that they were not required to contain these features. A vendor may have incorporated these features into their design. In this case the ITA would usually test them to the vendors functional requirements.

Human Factors: Volume 1, Section 2.2.7- Informal Gap Analysis
In looking at the changes to section 2.2.7 we see a number of new and changed requirements.
Section 2.2.7.1:2.2.3.5 through 2.2.3.9, 2.2.7, 2.2.8, 3.3 through 3.5, 4.2.2 through 4.2.5, 5.1 and 5.2, 6.1, and 7.
Section: 2.2.7.2.4, and 2.2.7.2.5.4.1
Audio:
- The 2002 VSS did not identify specific decibel volume settings for initial volume or minimum volume control.
- The 2002 VSS did not identify specific frequencies over the audible speech range of 315 Hz to 10KHz.
- The 2002 VSS did not stipulate the use of recorded human speech, rather than synthesized speech. (This appears to contradict the underlying principle of not dictating a design.)
- The 2002 VSS did not stipulate that voters have control the rate of speech. (The VVSG states this as a should and not a shall.   "Within reasonable limits" is not sufficiently defined for testing. The requirement needs to identify limits.)
Controls:
- The 2002 VSS did not stipulate that the mechanically operated controls or keys on a voting system shall be tactilely discernible without activating those controls or keys.

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- The 2002 VSS did not stipulate that the status of all locking or toggle controls or keys (such as the "shift" key) shall be visually discernible, and discernible either through touch or sound.
- The 2002 VSS did not stipulate that controls shall not require direct bodily contact or for the body to be part of any electrical circuit.
- The 2002 VSS did not stipulate that the voting system shall provide a mechanism to enable non-manual input that is functionally equivalent to tactile input. (The VVSG actually states this as a should and not a shall.)
- As the 2002 VSS does not stipulate requirements for voters who lack fine motor control or the use of their hands to perform submission of their ballot.
- The VVSG requirements regarding physical reach are much more detailed and some of the numbers appear to have changed.

Visual - Hearing Impaired
- The 2002 VSS did not stipulate specific requirements for the hearing impaired. It does not address sound cues as a method to alert the voter being accompanied by a visual cue.

Visual – Sight Impairments
- The 2002 VSS did not stipulate a system adjusted by the voter or poll worker, including font size, color, and contrast shall automatically reset to default for each voter but this was addressed in the NASED Technical Bulletin number 1.
- The 2002 VSS did not stipulate that all text intended for the voter during the voting session should be presented in a sans serif font. (Is this compatible with all state laws, as I believe some state laws stipulate ballot fonts?)
- The 2002 VSS did not stipulate minimum figure-to-ground ambient contrast ratio for text and informational graphics (including icons) intended for the voter shall be 3:1.
  - The 2002 VSS did not stipulate minimum sensitive touch areas sizes.

While we fully understand the Guidelines are out for public comment, we would recommend that in order to keep the states and local jurisdictions informed, the EAC and NIST initiate and publish a formal gap analysis between the Federal Election Commission Voting System Standards, April 2002 and the proposed Voluntary Voting System Guidelines. In doing so it will help states ask the vendors specific questions about their voting systems. Also, vendors with 2002 VSS qualified systems that support proposed VVSG functionality could request the labs provide independent verification of any supported gap identified functionality.

General Comments on the Content of the Human Factors: Volume 1, Section 2.2.7 Requirements
In reviewing the requirements we have identified the following items.

No Acceptance Criteria or Not Testable
- Section 2.2.7.1 .2.1.3: All voting stations using paper ballots should make provisions for voters with poor reading vision. *" This is s not a testable.   The type of provisions needs to be defined.*
- Section 2.2.7.1.2.2.3.9: The audio system should allow voters to control, within reasonable limits, the rate of speech. *"Within reasonable limits" is not a testable term. The limit must be defined.*

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Imprecise

- Section 2.2.7.1.2.2.2 - The Acc-VS shall provide an audio-tactile interface (ATI) that supports the full functionality of a normal ballot interface, as specified in Section 2.4. *The reference is too broad as Section 2.4 deals with the entire polling place process.*
- Section 2.2.7.1.2.2.2.1- The ATI of the Acc-VS shall provide the same capabilities to vote and cast a ballot as are provided by the other voting stations or by the visual interface of the Acc-VS. *The term "same capabilities" is very broad. (Write-ins written on the back of a paper ballot meets the standard of the "same capability" but does it meet the intent of the requirement?)*
- Section 2.2.7.1.3 For literate voters, the ALVS shall provide printed or displayed instructions, messages, and ballots in their preferred language, consistent with state and Federal law. *General references to state and Federal law are too broad.*
- Section 2.2.7.1.2.2.3.4 - A sanitized headphone or handset should be made available to each voter. *This is stated in terms of a jurisdiction procedure and not a requirement of the voting system. The requirement should be in terms of defining a methodology for the voting system to support this.*

Items missing:

- *The Guidelines do not address languages without a written form. What should appear on the visual ballot?*
- *The Guidelines do not address what languages must be supported or what functionality must be demonstrated? Does it include all 1965 Voting Rights Act, as amended languages (all 28)? This is significant for any system that has standard error messages that are compiled in the code.*
- *Does not address a minimum number of simultaneously supported languages in a single election (all 28?).*

General Comments on the Content of the Security: Volume 1, Section 6 Requirements

In reviewing the requirements I have identified the following items.

Wireless Requirements

Imprecise

- 6.7.2.1.3: The wireless documentation shall be closely reviewed for accuracy, completeness, and correctness. *What will the documentation be reviewed against? How are accuracy, completeness and correctness to be measured?*
- 6.7.2.1.3.1: This review shall be done either through an open and public review or by a subject area recognized expert. *What are the acceptable qualifications of an expert?*
- Clarification: *There is no prohibition for the use of wireless in the casting of ballots.*
- 6.7.6.4: The wireless audible path shall be protected or shielded. *Is there a precise wireless standard or level to test this to?*
- 6.7.7.1: The shielding shall be strong enough to prevent escape of the voting system's signal, as well as strong enough to prevent infrared saturation jamming. *Is there a precise wireless standard to test this to?*

Voter Verified Paper Audit Trail (Optional)

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Conflicting Requirements

- 6.8.1.1: The voting system shall print and display a paper record of the voter's ballot choices prior to the voter making the ballot choices final. *Does this conflict with section 1.5.2, which states a paper based voting system can't record, store or tabulate selections?*
- 6.8.5.3 The privacy and anonymity of voters whose paper records contain any of the alternative languages chosen for making ballot selections shall be maintained. *As the number of multi lingual voters at a particular polling place is outside the control of the voting system it would seem difficult to enforce this.*

Imprecise

- 6.8.1.3: The paper record shall contain all information stored in the electronic record. *The discussion indicates some electronic content need not be printed. The requirement needs to identify what need not be included on the paper record.*
- 6.8.4.7: The voting system should not record the electronic record as being approved by the voter until the paper record has been stored. *What should happen to the record if it is not approved? (Must a VVPAT be approved in order to cast the vote?)*
- 6.8.5.4: The voter shall not be able to leave the voting area with the paper record if the information on the paper record can directly reveal the voter's choices. *There is no definition of a voting area in the requirement or glossary. Is this the voting booth, an enclosure where multiple booths are segregated, or the polling place?*
- 6.8.6.2: All cryptographic software in the voting system should be approved by the U.S. Government's Cryptographic Module Validation Program (CMVP), as applicable. *This requirement is too broad. It needs to specify what exceptions are acceptable or alternative requirements.*
- 6.8.6.6.1: The exported electronic records shall be in a publicly available, non-proprietary format. *It would be helpful to specify a "preferred" group of formats and permit the use of other publicly available non-proprietary formats*
- 6.8.6.7: The paper record should be created in a format that may be made available across different manufacturers of electronic voting systems. *The requirement needs to specify standard format(s).*
- 6.8.6.8: The paper record shall be created such that its contents are machine-readable. *The requirement should specify what minimum part of the record is machine-readable. Does 6.8.6.10 regarding printing a bar code and digital signature satisfy with this requirement?*
- 6.8.7.2.7 Tamper-evident seals or physical security measures shall protect the connection between the printer and the voting system, so that the connection cannot be broken or interfered with without leaving extensive and obvious evidence. *The requirement needs to define extensive and obvious evidence. Is this a seal? Audit logging?*

Unable to Locate Cross Reference

- 6.8.3.1: All accessibility requirements from Section 2.2.7 shall apply to voting stations with VVPAT, except as set forth in Section 6.0.2.3.3.1.2. *I can't locate Section 6.0.2.3.3.1.2.*

Items missing:

- *In meetings of the NASED Technical Committee we discussed issuance of a clarification bulletin that addressed some of the issues encountered in the interpretation of the code*

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review standards, specifically the application of the term module in various requirements and the broader security requirements in the VSS that permit the labs to interpret some coding practices as insecure.   The problem is these practices are not explicitly identified and that leads to inconsistent application. An example is the hard coded password.

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