To: Bruce McDannold

Email: bmcdanno@ss.ca.gov

California State Election Systems Certification Panel

Dear Sir,

I am a blind engineer and have had over thirty-six years of experience with microprocessors, digital logic, analog circuits, speech output, human interface design and development of access technology for persons with disabilities, including extensive development and application of speech and Braille interface technologies. In addition to voting several times on the Sequoia Edge II DRE, I have personally done hands-on testing and evaluations of the other major voting systems, including Avante Vote-Trakker, AutoMARK, Diebold AV TSX, ES&S iVotronic and Hart eSlate.

As an expert witness for disability access to voting systems, I've submitted affidavits for voter actions in 5 states and have testified in a related federal case.

I have accepted no compensation from any vendors of voting systems.

I have also just completed several days of personally testing and evaluating one of the Vote-Pad systems, set up with the ballot materials for Trinity County.

My Reasons for Interest in the Vote-Pad Certification

For the obvious security reasons, I think that it is important to have a paper trail of separate paper ballots that can be used to audit the vote and can be verified by all voters, including voters with disabilities. I also want the voting systems to permit private vote casting by as many voters as possible.

The Vote-Pad is one of a very limited number of the available voting systems that has a paper ballot trail that is truly accessible for verification by voters with disabilities. `Due to its simple nature, the Vote-Pad allows us to directly and tangibly mark a standard paper ballot by ourselves instead of having to vote by placing our faith in a computerized black box that may or may not accurately record our desired vote electronically.

The Vote-Pad can be successfully used to vote by most disabled voters. However, like all other voting systems on the market, the Vote-Pad is not perfect and could be improved in many ways.

If properly implemented, it can be a valuable part of a blended system of voting tools.

I think that the Vote-Pad's most powerful and effective application is in its use for absentee balloting. Many voters are starting to ask, "Why shouldn't voters with disabilities have independent and accessible absentee voting from home, like so many other voters?"

Also, to the best of my knowledge, the Vote-Pad is currently the only voting system that gives truly independent and private access to voting for voters who are deaf-blind. Would it be fair to deny deaf-blind voters the use of an available system that can let them vote privately and independently?

Concerns about the Vote-Pad Usability Testing in California

I applaud your decision for the state of California to begin testing the usability and accuracy of the disability access features of voting systems to be certified in California. In fairness, why haven't other voting systems been forced to undergo a similar access usability/accuracy test?

As one who is dissatisfied with the "access options" Band-Aids slapped on most of the current voting systems, I hope you will be doing this testing on all California voting systems.

However, from what I've heard about the design of your tests for the Vote-Pad usability, it would seem that there is some unintentional but very significant bias inherent in the process.

I understand that your test scripts forced the voting subjects to skip races at two separate points in the ballot, and then to skip back later to return to those races to correct the under vote. It is not reasonable or fair to consider skipping around like this to be a normal ballot casting procedure for folks with disabilities. If you have observed disabled folks (especially visually impaired folks), while performing a series of tasks, you will have noticed that they will strongly stick to an orderly sequential execution of the tasks, without skipping around. This is because it is generally awkward to switch context and then get reoriented to the next task. Subjects with disabilities find that it is much more effective to take the time to carefully complete each task in a series, rather than to skip a difficult decision and count on finding and correcting it later.

The braille and audio vote casting guides for the Vote-Pad were not produced with abnormal skipping around in mind. For example, to support skipping and improve navigation on an audio tape, the Vote-Pad audio tapes could have been recorded with tone indexing beeps. These are normally inaudible place markers that act as audible beeps in fast forward or rewind, and are a major navigation aid used in many of the books available on recorded tapes for the reading disabled.

When testing voting systems, I have usually purposefully mismarked or under voted a contest, in order to find out how difficult it would be to try to skip back later and correct that contest. This has usually been extremely problematic.

For example, when voting on an eSlate, I could roll through its linear ballot in a fairly straightforward manner. However, when I attempted to back up within a race or do any skipping around the ballot, things became an order of magnitude more difficult, clumsy and nonlinear. It will be interesting to hear what happens in the eSlate access usability testing I assume you are planning, in all fairness, for the eSlate machine.

I understand that you also had Vote-Pad test subjects do four write-ins and that subjects were encouraged to use the tactile write-in grid sheets for this, instead of hand writing in the write-in windows on the ballot. I understand that you were interested in finding out how useable the tactile write-in grids would be. Considering that most voters have never done a single write-in in their life, it seems completely absurd to require subjects to perform so many write-ins. The awkwardness and tediousness of all write-in systems, especially this grid system, should be expected to cause undo subject stress, fatigue, errors and negativity.

It also seems unreasonable to have forced subjects to perform some of the write-ins before they had reached the write-in instructions at the end of the ballot casting instructions.

I have not yet heard what the results of your usability testing are. However, given what I've heard about the design and execution of the testing, I would predict high error rates, excessively long ballot completion times, and extreme test subject fatigue, frustration and dissatisfaction with the voting system.

Because the review and write-in procedures on the currently available DRE voting machines are very tedious and awkward for voters using audio access, I would expect that a similar usability test of those other voting systems would show many similarly negative results.

I'm wondering what kind of relevant testing data you have for comparison, and how will you use the biased results you've gathered in this atypical ballot casting test? Should the errors made in the excessive write-ins be weighted the same against the over-all accuracy? How will you factor in the negative effects of fatigue and stress brought on by concentrating so much on the write-ins?

As an alternative to using the tactile ballot's write-in cutout windows, the current tactile write-in grid sheets are very tedious and difficult to use. However, they do represent a workable write-in scheme for folks who can not do hand writing at all.

Despite the limitations of its alternative write-in grid system, I would like to encourage you and your certification panel to certify the Vote-Pad for use in California, conditional upon its having some clearly needed modifications.

Some Changes Recommended for the Vote-Pad System

The Vote-Pad overview audio tape should be recorded with a human voice.

Audio tone indexing beeps should be added to improve navigation on the audio tapes.

The text of the ballot casting guide, especially for review, should be streamlined significantly.

When TTS recordings are to be used, instead of human voice recordings, there should be more work done to assure better formatting, pause insertion and correction of pronunciation errors.

The write-in window cutouts of the ballot should be enlarged, and several improvements should be made to the tactile write-in grid sheets layout and design.

As a voter, I truly appreciate and thank you for the efforts you and your team are making to improve our voting systems. I appreciate that it is a challenging and frustrating job! Thank you also for your attention to my comments.

If I can be of any assistance, please feel free to contact me at:

Phone: (408) 866-1126

Email: Noel@PersonalDataSystems.com

Address: 638 Sobrato Lane, Campbell, CA, 95008

Sincerely,

Noel Runyan