

## Memorandum

**To:** Election Assistance Commission (EAC)  
EAC Technical Guidelines Development Committee (TGDC)

**CC:** Chair, IEEE P1583

**From:** Peter F. Klammer, P.E. – [pklammer@ieee.org](mailto:pklammer@ieee.org) – 303/915-2673  
Member, National Society of Professional Engineers (NSPE), Association  
for Computing Machinery (ACM), Institute for Electrical and Electronics  
Engineers (IEEE), IEEE Standards Association, Coloradoans for Voting  
Integrity (CfVI)

**Date:** 12/21/2004

**Re:** IEEE Project 1583 Standards for Voting Equipment Draft 5.3.2

---

### **Principles Which Should Precede Consideration of this Standard**

IEEE P1583 proposes a standard for polling-place machines, which are but cogs among the greater gears of our election system. However, they are the most visible, and for most common citizens, the only point of contact with the system. Furthermore, they are the most critical, since these machines must produce the ballots that are the primary evidence upon which all credibility of our democracy relies and depends.

An unstated charge of the Election Assistance Commission is to formulate a set of overriding principles which will be durable yardstick and enduring touchstone to measure and grade the EAC's decisions and recommendations. Without such principles, its edicts may devolve into expedient and conflicted rationalizations. But with a thoughtful framework of wise principles, well enunciated, the public may often correctly anticipate the consistent intended effects of the EAC's work. You won't need reams of specifications if you make your major expectations clear.

The leading principle that we would ask the EAC to adopt is TRANSPARENCY. The crux of the dispute between vendors and activists is whether or not it is sufficient for voting machines to count correctly. We argue that this is necessary, but not sufficient, because this point of view ignores voters' trust and confidence. In politics, perception is all. Healthy democracy depends on broad, committed participation. You must affirm: the "overall purpose" of our election system is not simply to produce correct numbers; it is in fact twofold: to produce demonstrably valid results, while giving its users – voters and candidates – credible, convincing confidence that it is properly doing so.

The second principle we would ask the EAC to recognize is an acceptable and reasonable definition of what a BALLOT should be. The word “ballot” has been tortuously flim-flammed and bamboozled into an oxymoronic market phrase, “electronic ballot.” The virtues of “digital electronic” magic that have showered upon us benefits of clearer music, sharper pictures, do not transfer well into the electoral domain. Unless a ballot is a durable, indelible, physical artifact; unless each and every ballot is unique and resistant to duplication or destruction – and obviously and evidently so from a layman’s perspective; unless a ballot is a “thing” and not merely a stipulation, there can be no hope of ultimately preventing clever manipulation, nor of dismissing skeptical cynics or conspiracy theorists. Physical ballots are burdensome nuisances; in the case of elections, these are virtues.

Third, I would ask the EAC to take a firm position of precautionary conservatism: whatever isn’t explicitly allowed, must be prohibited. As the draft stands, only the things described must be tested, and only the tests described must be conducted. Under the halo of “incentive to innovate,” vendors have argued for free hand to introduce new technologies and implementations not anticipated by the standard. That attitude may make good consumer appliances, but it would make bad medicine. Voters do not want be the guinea pigs of industry; elections need not be the test beds of market competition. Voting machinery should follow the model of aviation, wherein a new model must be type-certified for safety, and deployed fleets may be expected to operate reliably and economically for decades.

With a well-chosen set of guiding principles starting with these, many of the issues and questions of election equipment and administration would answer themselves. There will be no need to rule on the enforcement of two hundred fifty pages of technical minutiae if the most important questions can be answered in the affirmative: Is the operation of this machine, along with the rest of the system it works with, visibly and inarguably persuasive in the way it works, to all parties, not just to government-certified technical specialists but to any common citizen? Does it print or mark a physical ballot, which I can see and cast? If so, then its inner workings are of little consequence. Otherwise, if my choices are consigned to internal intricacies beyond my comprehension, and if the eventual “casting” of my choices into tangible form at the close of the election is forcibly delegated from me to an electronic agent beyond my control, then we will be doomed to an infinite regression of dispute, doubt, and distrust.

I commend my colleagues for their diligent efforts and sincere dedication to the goals and purposes of P1583. However, the work is presently flawed and incomplete, largely due to lack of internal consensus on such fundamental principles as the EAC might externally be able to apply.