

*January 21, 2005*

**State of California  
Standards For  
Accessible Voter Verified Paper Audit Trail Systems  
In Direct Recording Electronic (DRE) Voting Systems**

These standards have been adopted by the Secretary of State pursuant to Elections Code sections 19100 and 19205 and shall regulate and govern the use of the Accessible Voter Verified Paper Audit Trail System in Direct Recording Electronic (DRE) Voting Systems in all elections governed by the California Elections Code. These standards shall only apply to DRE systems for which an electronic record of the vote is created by the DRE and for which that electronic record is considered the official record.

These standards shall be effective beginning January 1, 2005, for all DRE voting systems certified on or after that date and beginning January 1, 2006, for all DRE voting systems, and shall be used in conjunction with all other statutory and regulatory requirements at the state and federal level. Insofar as feasible, all standards prescribed herein shall be carried out in full view of the public.

These standards constitute a minimum standard of performance. They are not intended to preclude additional steps taken by individual elections officials to enhance the security and reliability of the electoral process.

## 1. General Description

1.1 Components: The accessible voter verified paper audit trail (AVVPAT) system shall minimally consist of:

1.1.1 An Accessible Voter Verified Paper Audit Trail Writer (AVVPAT-W): A device attached, built into, or used in conjunction with a Direct Recording Electronic (DRE) unit. Such a device must minimally consist of:

1.1.1.1 Printer: A device that will duplicate a voter's selections on the DRE onto a paper record copy.

1.1.1.2 A Paper Record Display Unit: A unit that will allow a voter to view his or her paper record copy while preventing the voter from directly handling the paper record copy.

1.1.2 An Accessible Voter Verified Paper Audit Trail Record Storage Unit (AVVPAT-S): A device that stores cast and spoiled paper record copies.

1.1.3 These devices may be integrated as appropriate to their operation.

1.2 Operation: AVVPAT systems may be designed in various configurations. In all such devices, upon completion of selecting his or her contest choices on the DRE, the voter shall have the ability to verify his or her selections on a paper record copy. During the verification, the voter shall either accept or reject the choices represented on the paper record copy. Upon the completion of the verification process, both the electronic record and the paper record copy shall be stored and retained.

## 2. Design Requirements

### 2.1 General

#### 2.1.1 Use of Electronic and Paper Records

2.1.1.1 Every electronic record must have a corresponding paper record copy.

2.1.1.1.1 The paper record copy must be printed and the voter must have the opportunity to verify that record prior to the electronic record being recorded.

2.1.1.2 The electronic record shall be considered the official record except as described in 2.1.1.3 and 2.1.1.4.

2.1.1.3 The paper record copy shall be considered the official paper audit record and shall be used for the required 1% manual recount and for any full manual recount.

2.1.1.4 In the case of a difference between the electronic record and the paper record copy, the paper record copy shall govern, unless there is clear evidence that the paper record copy is inaccurate, incomplete or unreadable as defined in the system procedures.

2.1.2 Privacy: The AVVPAT system shall be designed to allow every voter to review, accept or reject his/her paper record copy privately and independently and shall comply with federal and state privacy requirements.

2.1.3 Secrecy: The AVVPAT system shall be designed in conjunction with procedural safeguards to ensure secrecy of votes so that it is not possible to determine which voter cast which paper record copy and shall comply with federal and state secrecy requirements.

2.1.4 Readability: The AVVPAT system shall be designed to maximize the ease in which the voter may review, accept or reject his/her paper record copy and shall comply with federal and state readability requirements.

2.1.5 Accessibility: The AVVPAT system shall be designed to allow access for disabled and limited literacy voters to privately and independently use the AVVPAT and shall comply with federal and state accessibility requirements.

2.1.6 Language Accessibility: The AVVPAT system shall be designed to allow each voter to verify their vote on a paper record copy in the same language they voted in on the DRE and shall comply with federal and state requirements.

2.1.6.1 For languages which lack a written form, the paper record copy shall be in English.

2.1.7 Security: The AVVPAT system shall be designed to prevent tampering with either the AVVPAT system or the paper record copy, and shall comply with federal and state security requirements.

## 2.2 Paper Record Copy

2.2.1 Security: Security protections shall be built into the paper record copy and/or AVVPAT-S to prevent tampering. This provision shall apply to paper record copies before, during and after printing.

2.2.2 Readability: The paper shall be designed so as to make the paper record copy readable by voters and election officials and shall comply with federal and state readability requirements.

2.2.3 Capacity: For each statewide election, the elections official shall provide a sufficient number of paper record copies in each precinct to reasonably meet the needs of the voters in that precinct. The same standards shall apply to paper record copies as for paper ballots as defined under federal and state requirements.

2.2.4 Retention: The voter verified paper record copy shall be retained by the elections official for the same period of time as mandated by state and federal law for the retention of paper ballots for that election.

## 2.3 Printer

2.3.1 Security: The printer shall be physically secure from tampering. The paper record copy and the image created by the AVVPAT-W on the paper record copy shall be designed to withstand storage requirements as outlined in these standards and federal and state requirements.

2.3.2 Readability: The image created by the printer shall be designed to allow a voter to review his or her paper record copy privately and independently.

### 2.3.3 Printed Information

2.3.3.1 Offices/Measures: The image created by the AVVPAT-W shall include every contest that is displayed to the voter on the DRE review screen.

#### 2.3.3.2 Selections

2.3.3.2.1 Candidates/Measures: The image created by the AVVPAT-W shall include every valid selection made for each contest as selected by the voter.

2.3.3.2.2 Write-in: The image created by the AVVPAT-W shall allow for write-in candidates as mandated by state law.

2.3.3.2.3 Undervote: The image created by the AVVPAT-W shall provide information on the contests for which the voter has not made a selection. This shall not replace the requirement that the DRE notify the voter on the DRE in the case of any undervote.

2.3.3.3 Provisional Ballot: The image created by the AVVPAT-W shall be clearly identifiable in the case of a provisional ballot.

2.3.3.4 Spoiled Ballot

2.3.3.4.1 The image created by the AVVPAT-W shall be clearly identifiable in the case of a spoiled paper record copy. The clearly identifiable spoiled paper record copy shall be shown in the paper record display unit to allow the voter to acknowledge the paper record copy has been spoiled. The AVVPAT system shall be designed to prevent a paper record copy from being spoiled after the voter has verified that paper record copy.

2.3.3.4.2 The voter shall have the opportunity to affirmatively spoil their paper record copy no more than two times. An error in recording or printing a paper record copy not caused by the voter shall not be counted as a spoiled paper record copy.

2.3.3.4.3 Upon spoiling their paper record copy the voter shall be able to modify and verify selections on the DRE without having to reselect all of their choices.

2.3.3.4.4 Before the voter causes a third and final paper record copy to be printed, the voter shall be presented with a warning notice that the selections made on screen will be final and the voter will see and verify a printout of their vote, but will not be given additional opportunities to change their vote.

## 2.3.4 Language Accessibility

2.3.4.1 The AVVPAT-W shall be capable of producing an image in all alternative languages for which the DRE is certified.

## 2.4 Paper Record Display Unit

2.4.1 Security: The paper record display unit shall allow the voter to inspect the paper record copy without physically handling the paper record copy and shall be physically secure from tampering.

2.4.2 Readability: The paper record display unit shall provide adequate visual space to allow the voter to privately and independently inspect the paper record copy. A paper record copy shall be readable from the same position and posture used for voting on the DRE. The voter shall have the ability to view both the review screen on the DRE and the paper record copy in the display unit simultaneously. If the paper record copy cannot be viewed in its entirety in the paper record display unit at one time, then the voter shall have the opportunity to verify the entire paper record copy prior to either the electronic record or the paper record copy being stored and recorded.

2.4.2.1 Covering: Any protective covering intended to be transparent shall be in such condition that it can be made transparent by ordinary cleaning of its exposed surface.

2.4.3 Accessibility: The AVVPAT components must conform to federal and state accessibility requirements.

2.4.3.1 This shall include, but is not limited to, an audio component.

2.4.3.1.1 The audio component must accurately relay the information printed on the paper record copy to the voter as verified through state testing.

## 2.5 Paper Record Storage Unit

2.5.1 Security: The Paper Record Storage Unit shall be designed to prevent tampering.

2.5.2 Secrecy: The AVVPAT system shall be designed to ensure secrecy of votes so that it is not possible to determine which voter cast which paper record copy.

2.5.3 Capacity: The combined capacity of all the paper record storage units in a precinct must be enough to accommodate all voters using the DREs within the precinct.

## 3. Procedure Requirements

3.1 Update: Testing and pre-election, election and post-election procedures for each DRE voting system shall be updated to reflect the use of the AVVPAT. These updates include, but are not limited to:

### 3.1.1 Testing and Certification

3.1.1.1 Testing: The AVVPAT system shall conform to federal and state testing requirements. Required testing shall include, but not be limited to, functionality, security, durability, longevity and accessibility testing.

3.1.1.2 Certification: The AVVPAT system must be certified for use by the State of California in conjunction with the rest of the voting system with which it is intended to be used.

3.1.2 Pre-election Procedures: The AVVPAT system components must be integrated into existing local logic and accuracy testing requirements.

### 3.1.3 Election Procedures

### 3.1.3.1 Malfunctions

3.1.3.1.1 The vendor shall provide procedures for how to investigate and resolve malfunctions including, but not limited to, misreporting votes, unreadable paper records, paper jams, low-ink, misfeeds and power failures.

3.1.3.1.2 The vendor shall include procedures for how to recover votes in the case of malfunction to assure a ballot is properly recorded and stored.

3.1.3.1.3 The vendor shall include procedures to prevent the AVVPAT system from being a single point of failure within a precinct.

3.1.3.2 The vendor shall include procedures for if the voter does not complete the verification process for their paper record copy.

### 3.1.4 Post Election Procedures

3.1.4.1 Procedures shall reflect the use of the paper record copies in the required 1% manual recount and any full manual recount.

3.1.4.2 The vendor shall include procedures for how the secrecy of votes will be ensured.

3.1.4.3 The vendor shall include procedures for how a discrepancy between an electronic record and its corresponding paper record copy shall be identified, investigated and resolved.

3.1.4.3.1 The vendor shall include procedures for determining what constitutes clear evidence that a paper record copy is inaccurate, incomplete or unreadable.