

5:02:09:02.02. Criteria for approving direct recording electronic voting machines. Before the State Board of Elections grants a certificate of approval, the following capabilities of the direct recording electronic voting machine must be demonstrated to the board or its designee. As used in this section the term, system, means direct recording electronic voting machine. The board may grant a certificate of approval for a system, if the system fulfills the following requirements:

- (1) Enables the voter to vote in absolute secrecy;
- (2) Presents the entire ballot to the voter in a series of sequential screens that include methods to ensure the voter sees all ballot options on all screens before completing the vote and allows the voter to review all ballot choices before casting a ballot;
- (3) Prevents any voter from selecting more than the allowable number of candidates for any office to prevent overvoting, alerts the voter on the screen if the voter attempts to overvote, and provides information on how to correct the overvote;
- (4) Accurately counts each vote for each position voted;
- (5) Is an electronic computer-controlled voting system that provides for direct recording and tabulating of votes cast;
- (6) Has a battery back-up system that, at a minimum, allows voting to continue uninterrupted for two hours without external power;
- (7) Along with any activating and vote recording devices and components, has a unique embedded internal serial number for audit purposes;
- (8) Is designed to accommodate multiple ballot styles in each election precinct and have an option to handle multiple precincts;
- (9) Has a real-time clock capable of recording and documenting the total time polls are open in a precinct and capable of documenting the opening and closing of polls;
- (10) Complies with the disability voting requirements of the Help America Vote Act;
- (11) For security purposes, along with each associated activating and recording device and component, employs a unique, electronically implanted election specific internal security code such that the absence of the security code prevents substitution of any unauthorized system or related component;
- (12) Has a color touch-screen that is at least fifteen inches in diagonal measure;

(13) Has an option to accommodate a wheelchair voter without intervention of the poll worker other than a minor adjustment such as the angle of the display, and the voter must be able to vote in a face-first position so that privacy is maintained with the ballot surface adjusted to a vertical position;

(14) Has wheels so that the system may be easily rolled by one person on rough pavement and rolled through a standard thirty-inch door frame if the net weight of the system, or aggregate of voting device parts, is over twenty pounds;

(15) Has a smart card type device to activate the system for each individual voter. The poll worker shall be able to activate the card at the poll table with an activation device and hand the card to the voter to use on any open voting system. The card shall be rendered unusable by the voting system after the voter has cast a ballot and after a period of time has expired. There shall be a manual solution available in the event the smart card activation device, or the smart card reading unit on the machine, fails;

(16) Prints an alphanumeric printout of the contest, candidates, position numbers, and vote totals when the polls are open so that the poll workers may verify that the counters for each candidate are on zero. These printouts shall contain the system serial number and the counter total. The poll worker must be able to request as many copies as needed. The system shall include a feature to allow reports to be sent to a printer or to an Excel compatible file;

(17) The system central processing unit is designed so that no executable code may be launched from random access memory. If the operating system is open or widely used, it must be an embedded system;

(18) Provides an electronic, redundant storage of both the vote totals and randomized individual ballot images. These randomized images must be able to be printed after the polls close;

(19) Allows a comparison of the multiple locations of totals and ballot images to detect any errors or discrepancies. In the event of a data discrepancy, an appropriate error message shall be displayed in a text format, in order to either correct the data error or prohibit voting from continuing;

(20) Has a programmable memory device that plugs into the system. This programmable memory device shall contain the ballot control information, the summary vote totals, maintenance log, operator log, and the randomized ballot images;

(21) Maintains all vote totals, counter totals, audit trail ballot images, and the internal clock time in both the main memory and the removable programmable memory devices in the event the main power and battery back-up power fail;

(22) Has a self-contained, internal back-up battery that powers all components of the system that are powered by alternating current power. In the event of a power outage

in the precinct the self-contained, internal back-up battery power shall engage with no disruption of operation or loss of data. The system shall maintain all vote totals, counter totals, and audit trail ballot images, and the internal clock time in both the main memory and the removable programmable memory devices in the event the main power and battery back-up fail;

(23) Has software that is able to run in a networked or stand-alone environment and support absentee in-person voting;

(24) Has as a standard or as an option, software and hardware provisions for remote transmission of election results to a central location;

(25) Has internal operating system software or firmware, that:

- (a) Is specifically designed and engineered for the election application;
- (b) Is contained within each touch-screen voting device;
- (c) Is stored in a nonvolatile memory within each terminal;
- (d) Includes internal quality checks such as parity or error detection and correction codes; and
- (e) Include comprehensive diagnostics to ensure that failures do not go undetected;

(26) Has a mandatory pre-election testing of the ballot control logic and accuracy. The logic and accuracy test results must be stored into the memory of the main processor (central processing unit) and into the same programmable memory device that is used on election day for future reference. The test results must be stored by vote total summaries and by each individual ballot image randomly. The system must be capable of printing a zero-results printout prior to these tests and results printout after the test; and

(27) Stores tabulation of votes, ballot by ballot, in two or more memory locations on separate integrated circuit chips and shall be electronically compared throughout the election. Any differences between votes tabulated and votes stored in multiple storage locations shall be detected immediately and generate an error message defining required maintenance on the electronic voting system before the system continues to be used in the election.

Source: 29 SDR 113, effective January 30, 2003; 29 SDR 177, effective July 2, 2003.

General Authority: SDCL 12-17B-17.

Law Implemented: SDCL 12-17B-2.