Election Systems & Software
AutoMARK Voter Assist Terminal, version 1.0
AutoMARK Information Management System, v 1.0
MDB, version 1.0.40
Model 100 Precinct Scanner, v 5.0.0.0
Model 550 Central Scanner, v 2.1.1.0
Model 650 Central Scanner, v 1.2.0.0
UNITY Election Management System, version 2.4.3

Staff Review and Analysis

Prepared by:
Secretary of State Elections Division
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I.   SUMMARY OF THE APPLICATION

AutoMARK hardware, firmware and software for use with existing and previously certified Election Systems & Software (ES&S) system components: Model 100 Precinct Scanner, version 5.0.0.0; Model 550 Central Scanner, version 2.1.1.0; Model 650 Central Scanner, version 1.2.0.0; and UNITY Election Management System, version 2.4.3.

II.   SUMMARY OF THE SYSTEM

The application consists of six components.

1.   AutoMARK Voter Assist Terminal (VAT), v. 1.0

The AutoMARK VAT is a new device that marks ES&S optical scan ballots. It was primarily designed to assist those who are visually impaired, physically disabled, or prefer to vote in an alternate language, allowing them to vote privately and independently

A voter using this device simply inserts his or her blank ballot. The VAT then scans the ballot to determine the correct ballot style configuration and displays the ballot through a series of screens on a touch-screen monitor (similar to DRE voting devices). The VAT is capable of being programmed to provide instruction and display the ballot in multiple languages. The AutoMARK VAT supports visually impaired voters through audio instruction and a Braille coded keypad. In this mode, the screen can be blanked to insure voter privacy. This audio mode also supports multiple languages. Finally, physically impaired voters can vote on the AutoMARK using a foot-pedal or by connecting their own sip-puff device.

If a marked ballot is inserted into the VAT, it will display the marked vote choices on the screen for verification and will also provide that verification through the audio mode.

The AutoMARK VAT does not store, count or tabulate voted ballots. It can only be used to mark optical scan ballots for tabulation by another device or to confirm the vote choices on a voted ballot. AutoMark Technical Services (ATS) developed the AutoMARK VAT. They have contracted with Ricoh Electronics, Inc. to manufacture the devices. ES&S has entered into partnership with ATS to sell and distribute the device.

2.   AutoMARK Information Management System (AIMS), v. 1.0 and MDB, v. 1.0.40

The AutoMARK Information Management System (AIMS) is PC compatible software that is used to program the configuration of AutoMARK VATs. MDB is a Microsoft Access database module integrated into AIMS. Initially election setup is performed in AIMS through import of Unity configuration files or direct input into AIMS. Written and audio translations can then be added to the ballot

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configurations. Finally, the appropriate configuration is recorded onto compact flash memory cards for insertion into AutoMARK VATs to configure the VATs for their appropriate precincts and ballot styles.

3. Model 100 Precinct Scanner, v. 5.0.0.0

The Model 100 is a optical scan precinct ballot counter. The scanner is programmed using a removable PCMCIA memory card. The scanner is mounted on one of two different types of ballot boxes at the polling place. A voted ballot is then run through the machine and the vote stored on the aforementioned memory card. At the close of the polls the memory card is removed so the results can be added to the central tabulation system. This scanner can also be programmed to warn the voter if a ballot is over-voted or under-voted. The Model 100 includes a built in printer to produce zero reports, close reports, audit reports, etc.

This version of the Model 100 precinct scanner and firmware were certified for use in California on September 17, 2004, and are included unchanged as part of this system

4. Model 550 Central Scanner, v. 2.1.1.0

The Model 550 is a central count optical scan voting system. The scanner is programmed using a removable EPROM memory chip. Ballots are then run through the scanner. Once scanning is completed, a floppy disk is used to store the results so that they can be exported to the UNITY central tabulation system.

The Model 550 includes two attached printers used to produce zero reports, close reports, audit reports, etc.

This version of the Model 550 scanner and firmware were certified for use in California on September 17, 2004, and are included unchanged as part of this system.

5. Model 650 Central Scanner, v. 1.2.0.0

The Model 650 is a central count optical scan voting system. The scanner is programmed using a removable zip disk. Ballots are then run through the scanner. Once scanning is completed, results are stored to the aforementioned zip disk so that they can be added to the central tabulation system.

The Model 650 includes two attached printers used to produce zero reports, close reports, audit reports, etc.

This version of the Model 650 scanner and firmware were certified for use in California on September 17, 2004, and are included unchanged as part of this system.

6. UNITY Election Management System, v. 2.4.3

Unity is an election management system software package composed of the following subcomponents:
· Audit Manager 7.0.2.0

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- EDM 7.2.1.0
- ESSIM 7.2.0.0
- HPM 5.0.3.0
- ERM 6.4.3.0

Before an election, Unity is used by a jurisdiction to create the ballot definition for an election. Unity is then used to program the various media used by the different vote counting components. After the election, Unity is used to compile and tabulate election returns from throughout the jurisdiction. Finally Unity contains a series of additional reporting functions.

This version of Unity was certified for use in California on September 17, 2004, and is included unchanged as part of this system

III. <u>TESTING INFORMATION AND RESULTS</u>

1. Federal Testing

We have received copies of the testing reports from both Federal Voting System Testing Laboratories (VSTL), SysTest labs and Ciber, Inc., indicating that federal qualification testing was successfully completed. Both reports indicate that both AIMS version 1.0 and the AutoMARK VAT v.1.0 with firmware version 1.0 meet the 2002 Federal Voting System Standards. Because several of the remaining system components have only been qualified to the 1990 standards, the overall system qualification is expected to be to the 1990 standards.

2. State Testing by the Secretary of State and Consultant.

The system was tested in Omaha, Nebraska from May 18, 2005 to May 27, 2005 by Secretary of State staff in conjunction with the state's technical expert, Mr. Steve Freeman. Additionally, invited representatives from the counties, the Technical Advisory Board and the accessibility community were invited to attend an 'open house' demonstration on Wednesday, June 1, 2005.

During that testing, a significant number of ballots, including multiple page ballots, were created on the AutoMARK VAT for both the primary and general test elections. These ballots were created using the touch-screen interface, the audio/keypad interface and a binary foot-pedal interface. The AutoMARK specifications indicate that the AutoMARK can also be operated with a standard sip-puff apparatus. While such an apparatus was not available for us to test with, the AutoMARK logic for sip-puff operation should be identical to that demonstrated successfully with the binary foot pedal. All the test ballots voted on the AutoMARK were printed correctly and successfully read by the Model 100 precinct scanner, as well as the Model 550 and Model 650 central scanners.

The logic of the AutoMARK prevents over-votes and provides user warnings when contests are under-voted. The AutoMARK also provides the user with a ballot summary for confirmation of the vote choices before printing the ballot.

During the testing, staff did make the following observances about the AutoMARK:
1. The AutoMARK is relatively heavy. The vendor's specifications indicate the AutoMARK weighs 48 pounds. Further, during the open house demonstration, the vendor indicated that the rolling carrying case for the AutoMARK weighs about 26 pounds. These weights could be significant with respect to delivery to and setup at the polling places. Further, a sturdy stand or table would be required to support the AutoMARK once deployed. While the vendor indicated such a stand was under development, it was not available for demonstration during our testing.
2. The AutoMARK is relatively slow. Once a ballot is inserted into the AutoMARK, there is a significant delay while the blank ballot is scanned and the correct ballot style is determined and displayed. Similarly, once the voter finalizes the ballot there is a significant delay while that ballot is printed. Average times to insert, scan, vote and print the relatively short ballots (four to seven contests) using the touch-screen for the test election averaged two minutes or more. Longer ballots and employment of the alternate audio or binary interfaces could significantly lengthen this time, making it prohibitive for use by the majority of voters and raising potential issues with Election Code §14224 that limits occupancy of a voting booth to ten minutes unless no other voter would be inconvenienced.
3. Write-in candidates were limited to 29 characters.
4. When voting on the AutoMARK, there were places where there was a noticeable delay between user input and the actual response on the screen. As a result, users would make multiple selections thinking their initial touch hadn't registered. Once the machine "caught-up" those selections would all register in sequence. This was particularly noticeable when opening the write-in pop-up window. The addition of the conventional windows hourglass would serve as visual clue to the user that the system was busy processing.
5. The AutoMARK/AIMS is capable of producing audio instructions natively for five languages (English, Spanish, traditional Chinese, Korean and Japanese) using text to speech synthesis. When using this text-to-speech audio, the user may adjust the tempo of audio instruction to meet his or her needs without distortion. Alternatively, audio instruction for these languages, as well as others, can be created by recording WAV files. However, use of the tempo control on recorded audio instruction results in significant distortion to those audio instructions. Further, when testing with English/Spanish dual language ballots, the synthesized English speech had difficulty pronouncing the Spanish words on the ballot. Finally, there is no ability on the AutoMARK to pause the audio instruction.
6. During testing, staff was able to induce the AutoMARK to crash by rapidly and repeatedly inputting instructions (eg tapping the foot pedal multiple times.) When this happened, the AutoMARK would display an error message and freeze,

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requiring a reset of the machine. When this happens, the ballot must be ejected and reinserted, and the user must start voting over again.

It should be noted that none of these issues are significant enough to delay certification of the AutoMARK VAT. This is a first-generation device and it is expected that future versions would bring improvements in most of these issues.

The AutoMARK is programmed and configured using the AIMS software. This programming can be done within AIMS or can be started by importing ballot files generated in the Unity election management system. As noted in the State consultant's report, there were numerous issues with importing ballot images from Unity, making it more practical to just recreate the ballots within AIMS.

The AutoMARK screen display can be turned off to insure privacy when used by blind voters. However, there is no privacy screen built into the AutoMARK to protect privacy when used by sighted voter with the screen turned on. While the vendor stated such a privacy screen was in development, no such privacy screen was available for evaluation during testing. A suitable privacy screen should be required for use of the AutoMARK. Similarly, voters with physical disabilities are likely to need assistance with inserting a ballot into and removing a ballot from the AutoMARK. In such instances, a privacy sleeve should be required to protect the confidentiality of the voted ballot.

Finally, during California testing of this system, Oregon was also conducting extensive testing of the Model 150, Model 550 and Model 650 central scanners for use in all-mail ballot elections. As noted in the State consultant's report, there were multiple problems encountered in accurately reading and tabulating those test ballots. Recalibrating the scanners and rescanning the ballots resolved these problems. In follow up discussions, the vendor agreed to provide all system users with special test ballots that could be used to check and assess calibration of the scanners prior to every election.

IV. COMPLIANCE WITH STATE AND FEDERAL LAWS AND REGULATIONS

The Secretary of State of California has developed and promulgated a procedure for approving, certifying, reviewing, modifying, and decertifying voting systems, vote tabulating systems, election observer panel plans, and auxiliary equipment, materials and procedures.

Four sections of this procedure, Sections 103, 104, 504, and 601, describe in detail the requirements any voting system must meet in order to be approved for use in California elections. These sections will be described in detail and the system will be analyzed for compliance in this Administrative Review and Analysis of the system.

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1. **§103 (a) (1): The machine or device and its software shall be suitable for the purpose for which it is intended.**

The system meets this requirement.

2. **§103 (a) (2): The system shall preserve the secrecy of the ballot.**

As noted in section III, the system presented for testing lacked both a privacy screen and a privacy sleeve for voters using the AutoMARK.   With the addition of both, the system should protect the secrecy of the ballot as well as the previously certified system.

3. **§103 (a) (3): The system shall be safe from fraud or manipulation.**

The system is at least as secure as the previously certified version of this ES&S system. The addition of the AutoMARK to the system does not introduce new risks to fraud or manipulation as the device only marks paper ballots. The AutoMARK does not store or count ballots.

4. **§103 (a) (4): The system shall be auditable for the purposes of an election recount or contest procedure.**

As a paper-based optical scan voting system, this system fully meets these requirements.

5. **§103 (a) (5): The system shall comply with all appropriate federal and California laws and regulations.**

The system meets this requirement.

6. **§103 (a) (6): The system shall have been certified, if applicable, by means of qualification testing by a Nationally Recognized Test Laboratory (NRTL) and shall meet or exceed the minimum requirements set forth in the *Performance and Test Standards for Punch Card, Mark Sense, and Direct Recording Electronic Voting Systems*, or in any successor voluntary standard document, developed and promulgated by the Federal Election Commission.**

Final VSTL reports have been issued, but the system has not yet received a federal qualification number.

7. **§103 (b): In addition to the requirements of subdivision (a) of this section, voting systems, procedures, and equipment approved and certifed by the Secretary of State shall promote accessible voting opportunities for persons with physical disabilities.**

The new component to this system, the AutoMARK VAT permits voters with physical disabilities to vote privately with minimal assistance. The VAT has an audio instruction mode for voters with visual impairments. For voters with physical impairments, the unit supports voting via a push-button control panel, via a binary foot pedal, and via a voter-supplied sip-puff interface.

8. **§104 (a): Certification consists of three separate levels of testing: qualification, certification and acceptance.**

Federal qualification testing has been successfully completed and the testing reports have been received. The NASED qualification number for this system has not yet been issued.

Staff in conjunction with a technical consultant to the Secretary of State successfully performed state certification testing.

Acceptance testing will be conducted by the county elections official as a county takes receipt of the system.

9. **§104 (b): Certification tests shall include functional tests and qualitative assessment to ensure that the system operates in a manner that is acceptable under federal and state law and regulations.**

It is the opinion of the expert technical consultant that the scope of the certification test was adequate to make basic recommendations and observations about the logical accuracy, some user friendliness issues, and compliance with state law.

10. **§104 (c): Certification tests shall enhance public confidence by assuring that the system protects the secrecy of the ballot and the security of the voting process, and records and counts votes accurately.**

In all tests performed, this system recorded and counted votes accurately. With the addition of a privacy screen for the AutoMARK VAT and a privacy sleeve for the ballot, as well as procedures for use of both, the secrecy of the ballot will be protected. Because this system is entirely paper-based, the public should have increased confidence in the accuracy of the results as any election with this system will be fully auditable.

11. **§104 (d): Certification tests shall promote public confidence that the system is easy to use or 'voter friendly.'**

The proposed system is as voter friendly as the previously certified ES&S system. The addition of the AutoMARK VAT extends this usability to those voters with physical disabilities.

12. **§104 (e): Certification testing shall demonstrate that the system creates an audit trail showing both that the voter was able to vote for the candidate or for or**

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against a measure of his or her choice and that the system correctly and consistently interpreted the voter's votes.

Because this system is paper based and fully auditable, the system meets this requirement.

13. **§504: The Evaluation shall include a review of California Elections Code sections, which address the application.**

A review of the appropriate Elections Code sections was conducted.

§15360. During the official canvass of every election in which a voting system is used, the official conducting the election shall conduct a public manual tally of the ballots tabulated by those devices cast in 1 percent of the precincts chosen at random by the elections official. If 1 percent of the precincts should be less than one whole precinct, the tally shall be conducted in one precinct chosen at random by the elections official.

In addition to the 1 percent count, the elections official shall, for each race not included in the initial group of precincts, count one additional precinct. The manual tally shall apply only to the race not previously counted.

The system fully supports this requirement.

§19300 permit the voter to vote for all the candidates of one party or in part for the candidates of one party and in part for the candidates of one or more other parties.

The system meets this requirement.

§19301. A voting machine shall provide in the general election for grouping under the name of the office to be voted on, all the candidates for the office with the designation of the parties, if any, by which they were respectively nominated.

The designation may be by usual or reasonable abbreviation of party names.

The system meets this requirement.

§19302. The labels on voting machines and the way in which candidates' names are grouped shall conform as nearly as possible to the form of ballot provided for in elections where voting machines are not used.

The system meets this requirement.

§19303. If the voting machine is so constructed that a voter can cast a vote in part for presidential electors of one party and in part for those of one or more other parties or those not nominated by any party, it may also be provided with: (a) one device for each party for voting for all the presidential electors of that party by one operation, (b) a ballot label therefore containing only the words "presidential electors" preceded by the name of the party and followed by the names of its candidates for the offices of President and Vice President, and (c) a registering device therefore which shall register the vote cast for the electors when thus voted collectively.

If a voting machine is so constructed that a voter can cast a vote in part for delegates to a national party convention of one party and in part for those of one or more other parties or those not nominated by any party, it may be provided with one device for each party for voting by one operation for each group of candidates to national conventions that may be voted for as a group according to the law governing presidential primaries.

No straight party voting device shall be used except for delegates to a national convention or for presidential electors.

The system complies with these requirements.

§19304. A write-in ballot shall be cast in its appropriate place on the machine, or it shall be void and not counted.

The system complies with this requirement.

§19320. Before preparing a voting machine for any general election, the elections official shall mail written notice to the chairperson of the county central committee of at least two of the principal political parties, stating the time and place where machines will be prepared. At the specified time, one representative of each of the political parties shall be afforded an opportunity to see that the machines are in proper condition for use in the election.

The party representatives shall be sworn to perform faithfully their duties but shall not interfere with the officials or assume any of their duties. When a machine has been so examined by the representatives, it shall be sealed with a numbered metal seal. The representatives shall certify to the number of the machines, whether all of the counters are set at zero (000), and the number registered on the protective counter and on the seal.

The system meets this requirement.

§19321. The elections official shall affix ballot labels to the machines to correspond with the sample ballot for the election. He or she shall employ competent persons to assist him or her in affixing the labels and in putting the machines in order. Each machine shall be tested to ascertain whether it is operating properly.

The system supports this requirement.

§19322. When a voting machine has been properly prepared for an election, it shall be locked against voting and sealed. After that initial preparation, a member of the precinct board or some duly authorized person, other than the one preparing the machines, shall inspect each machine and submit a written report. The report shall note the following: (1) Whether all of the registering counters are set at zero (000), (2) whether the machine is arranged in all respects in good order for the election, (3) whether the machine is locked, (4) the number on the protective counter, (5) the number on the seal. The keys shall be delivered to the election board together with a copy of the written report, made on the proper blanks, stating that the machine is in every way properly prepared for the election.

The system supports this requirement.

§19340. Any member of a precinct board who has not previously attended a training class in the use of the voting machines and the duties of a board member shall be required to do so, unless appointed to fill an emergency vacancy.

The system does not adversely impact this requirement.

§19341. The precinct board shall consist of one inspector and two judges who shall be appointed and compensated pursuant to the general election laws. One additional inspector or judge shall be appointed for each additional voting machine used in the polling place.

The system does not adversely impact this requirement.

§19360. Before unsealing the envelope containing the keys and opening the doors concealing the counters the precinct board shall determine that the number on the seal on the machine and the number registered on the protective counter correspond to the numbers on the envelope.

Each member of the precinct board shall then carefully examine the counters to see that each registers zero (000). If the machine is provided with embossing, printing, or photography devices that

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record the readings of the counters the board shall, instead of opening the counter compartment, cause a "before election proof sheet" to be produced and determined by it that all counters register zero (000).

If any discrepancy is found in the numbers registered on the counters or the "before election proof sheet" the precinct board shall make, sign, and post a written statement attesting to this fact. In filling out the statement of return of votes cast, the precinct board shall subtract any number shown on the counter from the number shown on the counter at the close of the polls.

The system supports this requirement.

§19361. The keys to the voting machines shall be delivered to the precinct board no later than 12 hours before the opening of the polls. They shall be in an envelope upon which is written the designation and location of the election precinct, the number of the voting machine, the number on the seal, and the number registered on the protective counter. The precinct board member receiving the key shall sign a receipt.

The envelope shall not be opened until at least two members of the precinct board are present to determine that the envelope has not been opened.

At the close of the polls the keys shall be placed in the envelope supplied by the official and the number of the machine, the number written on the envelope.

The system supports this requirement.

§19362. The exterior of the voting machine and every part of the polling place shall be in plain view of the election precinct board and the poll watchers.

Each machine shall be at least four feet from the poll clerk's table.

The system supports this requirement.

§19363. Voters shall not remain in or occupy the booths or compartments longer than is necessary to mark their ballots, which shall not exceed five minutes. However, where no other voter would be inconvenienced, a longer period shall be allowed.

As noted in Section III, it is entirely possible that voters using the VAT could exceed this five minute limit, particularly on elections with long ballots or when using the alternative interfaces.

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§19370. As soon as the polls are closed, the precinct board, in the presence of the watchers and all others lawfully present, shall immediately lock the voting machine against voting and open the counting compartments, giving full view of all counter numbers. A board member shall in the order of the offices as their titles are arranged on the machine, read and distinctly announce the name or designating number and letter on each counter for each candidate's name and the result as shown by the counter numbers. He or she shall also in the same manner announce the vote on each measure.

If the machine is provided with a recording device, in lieu of opening the counter compartment the precinct board shall proceed to operate the mechanism to produce the statement of return of votes cast record in a minimum of three copies, remove the irregular ballot, if any, record on the statement of return of votes cast record. The irregular ballot shall, be attached to the statement of result record of votes cast for the machine and become a part thereof. One copy of the statement of return of votes cast for each machine shall be posted upon the outside wall of the precinct for all to see. The statement of return of votes cast for each machine for the precinct shall constitute the precinct statement of result of votes cast.

The system supports this requirement.

§19371. Before adjourning, the precinct board shall seal the operating lever with the seal provided and lock the machine so that the voting and counting mechanism may not be operated.

It shall remain locked and sealed against operation until the time for filing a contest of election has expired, which shall not exceed a period of 30 days following the declaration of the result of the election by the body canvassing the returns.

This requirement does not apply to this system.

§19380. During the reading of the result of votes cast, any candidate or watcher who may desire to be present shall be admitted to the polling place. The proclamation of the result of the votes cast shall be distinctly announced by the precinct board who shall read the name of each candidate, or the designating number and letter of his or her counter, and the vote registered on the counter. The board shall also read the vote cast for and against each measure submitted. The board shall not count votes cast for write-in candidates, but shall have these counted by the elections official. During the proclamation, many opportunities shall be given to any person lawfully present to compare the result so announced with the counter dials of the machine, and any necessary corrections shall immediately be made by the precinct board, after which the doors of the voting machine shall be closed and locked.

If the machine is provided with a recording device, the alternate procedures in Section 19370 may be used.

The system supports this requirement.

§19381. In each election district where voting machines are used, statements of the results of the vote cast shall be printed to conform with the type of voting machine used.

The designating number and letter on the counter for each candidate shall be printed next to the candidate's name on the statements of result of the vote cast. Two such statements shall be used in each election district.

The system supports this requirement.

§19382. The statement of the result of votes cast, which shall be certified by the precinct board, shall contain:
(a) The total number of votes cast.
(b) The number of votes cast for each candidate and measure as shown on the counter.
(c) The number of votes for persons not nominated.
(d) Printed directions to the precinct board for their guidance before the polls are opened and when the polls are closed.
(e) A certificate, which shall be signed by the election officers before the polls are opened, showing:
(1) The delivery of the keys in a sealed envelope.
(2) The number on the seal.
(3) The number registered on the protective counter.
(4) Whether all of the counters are set at zero (000).
(5) Whether the public counter is set at zero (000).
(6) Whether the ballot labels are properly placed in the machine.
(f) A certificate that shall be filled out after the polls have been closed, showing:
(1) That the machine has been locked against voting and sealed.
(2) The number of voters as shown on the public counter.
(3) The number on the seal.
(4) The number registered on the protective counter.
(5) That the voting machine is closed and locked.

The system meets this requirement.

§19383. A member of the precinct board shall enter the vote, as registered, on the statements of result of votes cast, in the same order on the space that has the same name or designating number and letter, after which another member shall verify the figures by calling them off in the same manner from the counters of the machine.

The counter compartment of the voting machine shall remain open until the official returns and all other reports have been fully completed and verified by the precinct board.

If the machine is provided with a recording device, the alternate procedures in Section 19370 may be used.

The system supports this requirement.

§19384. The precinct board shall, before it adjourns, post conspicuously on the outside of the polling place a copy of the result of the votes cast at the polling place. The copy of the result shall be signed by the members of the precinct board.

If the machine is provided with a recording device, the statement of result of vote's cast produced by operating its mechanism may be considered the "result of the votes cast" at the polling place.

The system supports this requirement.

§19385. The precinct board shall immediately transmit unsealed to the elections official a copy of the result of the votes cast at the polling place, the copy shall be signed by the members of the precinct board, and shall be open to public inspection.

The system supports this requirement.

§19386. Before proceeding to canvass the returns of an election at which voting machines have been used to register the votes cast, the board authorized to canvass returns shall open the counter compartment and compare the records of votes cast for the several candidates voted for and for and against the several measures voted upon shown on each machine with those recorded on the statement of results of votes cast prepared from that machine by the precinct board. Any errors found on the statement shall be corrected by crossing out the recorded incorrect number, and recording the correct number nearby.

The system meets this requirement.

14. **§504 (b): A review of federal statutes or regulations, which address the application.**

    The Voting Rights Act of 1965, as amended (42 U.S.C. 1973), requires all elections in certain covered jurisdictions to provide registration and voting materials and oral assistance in the language of a qualified language minority group in addition to English. Currently in California, there are six VRA languages (Spanish, Chinese, Japanese, Vietnamese, Korean and Tagalog) as prescribed under the law.

The system fully meets this requirement. The system's paper ballots can be easily printed in these languages, as well as any others. Further, the AutoMARK can be programmed to display the ballot in any of these languages on the touch screen interface and to provide audio instruction in any of these languages.

The National Voter Registration Act of 1993 (42 U.S.C. 1973gg and 11 CFR 8) allows for the casting of provisional ballots through Fail-Safe Voting procedures.

Provisional ballots can easily be cast with this system. Because the AutoMARK only marks ballots (or verifies the marking of a ballot), it has no impact of provisional voting.

The Voting Accessibility for the Elderly and Handicapped Act of 1984 (42 U.S.C. 1973ee through 1973ee-6) requires each political subdivision conducting elections within each state to assure that all polling places for federal elections are accessible to elderly and handicapped voters, except in the case of an emergency as determined by the state's chief election officer or unless the state's chief election officer: (1) determines, by surveying all potential polling places, that no such place in the area is accessible or can be made temporarily accessible, and (2) assures that any handicapped voter assigned to an inaccessible polling place will, upon advance request under established state procedures, either be assigned to an accessible polling place or be provided an alternative means of casting a ballot on election day.

This system supports this requirement.

The Retention of Voting Documentation (42 U.S.C. 1974 through 1974e) statute applies in all jurisdictions and to all elections in which a federal candidate is on a ballot. It requires elections officials to preserve for 22 months all records and papers which came into their possession relating to an application, registration, payment of a poll tax, or other act requisite to voting. Note: The US Department of Justice considers this law to cover all voter registration records, all poll lists and similar documents reflecting the identity of voters casting ballots at the polls, all applications for absentee ballots, all envelopes in which absentee ballots are returned for tabulation, all documents containing oaths of voters, all documents relating to challenges to voters or absentee ballots, all tally sheets and canvass reports, all records reflecting the appointment of persons entitled to act as poll officials or poll watchers, and all computer programs used to tabulate votes electronically. In addition, it is the Department of Justice's view that the phrase "other act requisite to voting" requires the retention of the ballots themselves, at least in those jurisdictions where a voter's electoral preference is manifested by marking a piece of paper or by punching holes in a computer card.

The system meets this requirement. All votes in this system are recorded on paper ballots that can be easily retained

15. **504 (c): A copy of the approved Qualification Test results released directly to the Secretary of State by a Nationally Recognized Test Laboratory (NRTL).**

Qualification test reports have been received from the federal Voting System Testing Laboratories (VSTL).

16. **§504 (d): A review, if applicable, of transcripts or other materials from prior meetings or hearings on the proposed system, procedure, or modification, either in whole or in part.**

The relevant documentation has been reviewed.

17. **§504 (e): A review, if applicable, of any procedures manuals, guidelines or other materials adopted for use with the system addressed by the application.**

A draft version of use procedures has been submitted and evaluated by staff. A final version of those procedures that will incorporate staff recommendations, as well as any certification requirements, will be submitted for final approval after certification of the system and prior to any use of this system. All other relevant materials for use of this system have been reviewed.

18. **§504 (f): A review of any effect the application will have on the security of the election system.**

The addition of the AutoMARK VAT does not negatively impact the security of the election system.

19. **§504 (g): A review of any effect the application will have on the accuracy of the election system.**

The system has been tested by federal and state testers and deemed to record votes accurately.

20. **§504 (h): A review of any effect the application will have on the ease and convenience with which voters use the system.**

The addition of the AutoMARK VAT extends the ease and convenience of this system to voters with physical disabilities and those who prefer audio instruction in a language other than English.

21. **§504 (i): A review of any effect the application will have on the timeliness of vote reporting.**

The addition of the AutoMARK should have no affect on the timeliness of vote reporting.

22. **§504 (j): A review of any effect the application will have on the overall efficiency of the election system.**

The addition of the AutoMARK will have no affect on the overall efficiency of the election system.

23. **§504 (k): A Description of Deposit Materials showing that the Ballot Tally Software Source Code has been deposited in Escrow with an Escrow Company approved pursuant to Chapter 6, Division 7, Title 2 of the California Administrative Code, beginning with Section 20630.**

Source code will be deposited in an approved escrow facility and proof of that deposit must be received prior to any sale or use of the system in California.

24. **§601: The Secretary of State shall not approve a proposed item without a finding that the item conforms to all applicable laws, procedures and regulations, including the right to a secret ballot, does not compromise the accuracy, security or integrity of the election process, nor interferes with the voter's ease and convenience in voting.**

As noted above, with procedures in place, the proposed system is at least as effective in maintaining the secrecy of the ballot, the accuracy, security and integrity of the elections process, and voter ease and convenience as the currently certified ES&S systems.

V.   ADDITIONAL CONSIDERATIONS

The Help America Vote Act (HAVA) §301(a) mandates several requirements for voting systems, including:
- The ability to verify the vote choices on the ballot before that ballot is cast and counted,
- Notification to the voter of over-votes on a ballot,
- Auditability with a permanent paper record of votes cast,
- Accessability for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence)

This system supports these requirements in the following manner:
- The paper ballots themselves lend themselves to visual inspection and verification.
- The AutoMARK provides its users with a ballot review screen prior to printing the ballot. Further, any voted ballot can be inserted into the ballot for review and verification.
- The AutoMARK prevents over-voting a contest. The Model 100 scanner can be programmed to provide a warning when over-voted ballots are inserted into the scanner.

- Because all ballots in this system are paper based, there is a fully auditable permanent record of the election.
- Deployment of the AutoMARK in a precinct provides accessibility for persons with disabilities at the polling place.

VI. PUBLIC COMMENT

On June 1, 2005, an "open house" demonstration was held at the Secretary of State headquarters for invited representatives of the accessibility community, as well as county elections officials and members of the Technical Advisory Board to observe and review this system with SOS and vendor staff. Participants included:
- 44 elections staff representing ten counties,
- four representatives of the accessibility community, and
- one representatives of the Technical Advisory Board

Some participants in this event have subsequently sent written comments that have been submitted with this report.

The AutoMARK was generally well received by those participants. The major issues raised by participants in the "open house" are:
1. The weight of the AutoMARK could be an issue for delivery and deployment of the AutoMARK to polling places.
2. Physically disabled voters would likely need assistance inserting and removing ballots from the AutoMARK, making a privacy sleeve mandatory.
3. A privacy screen was lacking from the AutoMARK and should be required.
4. Several participants commented on the slow speed when voting on the AutoMARK, noting that would probably limit its use to voters with disabilities.

VII. RECOMMENDATION

Staff recommends the certification of the Election Systems & Software system comprised of the following components: AutoMARK Voter Assist Terminal, version 1.0; AutoMARK Information Management System, v 1.0 with MDB, version 1.0.40; Model 100 Precinct Scanner, v 5.0.0.0; Model 550 Central Scanner, v 2.1.1.0; Model 650 Central Scanner, v 1.2.0.0; and UNITY Election Management System, version 2.4.3. This certification should include the following conditions:

1. The vendor must obtain and submit a copy of federal qualification for all system components by June 30, 2005.
2. No additional software developed by the Vendor other than that specifically listed in this certification shall be installed on a computer running Unity version 2.4.3.

3. No substitution or modification of the voting systems shall be made with respect to any component of the voting systems, including the Procedures, until the Secretary of State has been notified in writing and has determined that the proposed change or modification does not impair the accuracy and efficiency of the voting systems sufficient to require a re-examination and approval.

4. The Secretary of State reserves the right, with reasonable notice to Vendor and to the counties using any of the voting systems, to modify the Procedures used with any of the voting systems and to impose additional requirements with respect to the use of any of the systems if the Secretary of State determines that such modifications or additions are necessary to enhance the accuracy, reliability or security of any of the voting systems. Such modifications or additions shall be deemed to be incorporated herein as if set forth in full.

5. Any county using any voting system shall, prior to such use, file with the California Secretary of State a copy of its Election Observer Panel plan.

6. A final version of use procedures must be submitted to and approved by the Secretary of State prior to sale or use of the system in California. These procedures must include requirements for use of a privacy screen and a privacy sleeve with the AutoMARK.

7. The vendor is required to provide all users of this system with test ballots and appropriate procedures to check and assess calibration of the Model 550 and Model 650 central tabulation scanners prior to each election.