The State of Texas

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Henry Cuellar, Ph.D.
Secretary of State

TO: Ann McGeehan
        Elections Division Director

FROM: Glenn Glover
        Voting System Examiner

DATE: December 11, 2001

A voting systems certification examination was held at the Office of the Secretary of State Elections Division on Tuesday morning, Oct. 23, 2001.

Hart Intercivic submitted the following election products for certification: Ballot Origination Software System (BOSS) version 2.8, TALLY ver 2.8, eSlate Precinct Voting System v1.15, Ballot Now v1.4, and M2B3 Multi memory card reader.

The BOSS, TALLY ɛ   certified in May of this year.
The new versions of t   *Hart's*   with Texas Election Standards.
The software changes   as providing additional error
checking for undervoi   *Ballot*

The two new product: *Now*   ory card reader add additional
functionality to Hart':   were found during the
presentation of these i

After reviewing the d   I recommend that the BOSS
ver 2.8, TALLY ver 2   lot Now v1.4, and the M2B3,
be certified for use in

All comments and rec   aminer of voting systems are
based on documentati   rcivic.

HART Intercivic

Hart InterCivic demonstrated their voting system in Austin on October 22, 2001. There were changes to the previous examined BOSS, Tally, and BallotNow and Eslate systems.

The current releases of the systems are as follows:

BOSS - version 2.8
TALLY - version 2.8
BallotNow - version 1.4
Eslate (firmware) - version 1.1.5

A summary of the changes is as follows:

- Modified ballot generation code to improve formatting capabilities, font handling, and text placement.

- Added capability to create and save templates.

- Cosmetic or insignificant changes to BOSS user interface.

- Added the capability to have a multiple flash card reader/writer (M2B3). The M2B3 is used by BOSS to "burn" the mobile ballot boxes (flash cards). The M2B3 is also used by TALLY to queue up multiple mobile ballot boxes from the precincts when the polls are closed. Reading of the ballots is still serial, that is, one flash card is read a time by TALLY.

- Added flashing icons to the Eslate summary screen to help a voter see if there is more screens to the summary and/or how to cast the ballot.

- The security of the TALLY system has been enhanced so that an election worker is no longer able to escape the operation system while accumulation is occurring.

Conclusion

The systems performed flawlessly. I recommend certification of each system.

Tom Watson
Examiner

Voting System Examination
Hart Intercivic

Prepared for the
Secretary of State of Texas

James Sneeringer, Ph.D.
Designee of the Attorney General
November 10, 2001

This report comprises the findings of the Attorney General's designee from an examination of the equipment listed on October 23, 2001, pursuant to Title 9, Chapter 122 of the Texas Election Code, section 122.036(b).

All Components: Questions, Risks and Problems

1. Since no independent test report has yet been provided for these components, and since they may be modified to fix problems found by the independent testing authority, the version presented at the examination may be different from the version approved by the independent testing authority. *If these modifications should be unsatisfactory or have unintended consequences, the examiners will have no opportunity to detect this.*

DRE System: Precinct Voting System (PVS), Version 1.15 (E-Slate and booth controller), Previously Certified

New Features in 1.15

- On the summary screen at the end of the ballot, they added flashing icons to indicate which button to press to move to the next page of the summary or to cast your vote

PVS: Questions, Risks and Problems

- None

Multiple Card Reader, M2B3

- Reads and writes flash memory cards (Mobile Ballot Box, MBB)
- There is still a resident card reader in the PC
- This allows reading of 4 cards simultaneously, and reads them faster
- Used by BOSS and Tally

M2B3: Questions, Risks and Problems

- None

Ballot Printing Software: Ballot Now Version 1.4

New Features in 1.4

- Improved formatting of printed ballots
- New templates can become part of the customer's default database
- Slight user-interface changes
- 128 MB cards are addressable

Ballot Now: Questions, Risks and Problems

- None

Ann McGeehan
Page 2
November 30, 2001

instance, a user can't suspend processing of ballot resolution and go to another task. The entire application must be stopped and the user must log off.

It might also be advisable to have a timeout function to prevent possible tampering with ballot resolution. If the system doesn't see any user activity for a period of time, it should lock out all activity and require the user to log in again.

All of the modifications appeared to function as advertised without observable negative side effects. The minor improvements suggested for Ballot Now have no impact on accuracy and completeness of the system.

The Department of Information Resources (DIR) finds no technical objections to certifying all of the above systems at this time.

Sincerely,

Nick Osborn
Systems Analyst

CP:MM:NO:sk

The State of Texas

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Gwyn Shea
Secretary of State

TO: Ann McGeehan
          Elections Division Director

FROM: Glenn Glover

DATE: April 26, 2002

Subject: Version change approval

Hart Civic Inc. has requested approval for a minor version upgrades for the BOSS, Tally, Ballot Now, and PVS voting system components.

Hart's summary of the features changed indicates no loss or change of core functionality of their voting systems components which had been previously certified to be in compliance with Texas Election laws.

The specific versions changes submitted are as follows:

BOSS: from v 2.8 to 2.9
Tally: from v 2.8 to 2.9
Ballot Now: from v. 1.4 to 1.5
PVS: from 1.15 to 1.16

None of the listed changes appear to be in conflict with Texas Voting System Standards. I approve the version changes based upon review of Hart's submitted summary document.

The State of Texas

Gwyn Shea
Secretary of State

REPORT OF REVIEW OF
MODIFICATIONS TO HART INTERCIVIC TALLY VOTING SYSTEM

PRELIMINARY STATEMENT

Hart InterCivic (the "Vendor") presented modifications to its Tally voting system for review by the Secretary of State. The Vendor's documentation was submitted to the Secretary of State's employee voting systems examiner to determine whether the changes were substantial enough to warrant review in a full voting system examination.

BRIEF DESCRIPTION OF TALLY VOTING SYSTEM

Tally is the central counting station software designed for use with the Vendor's eSlate DRE voting system. The modification presented for review was version 2.9 which involved minor enhancements designed to accommodate larger numbers in undervote accumulations and which do not change the core functionality of the Tally software.

FINDINGS

The following are my independent findings, based on written evidence submitted by the Vendor and the findings of the Secretary of State employee voting system examiner.

The modifications to the Tally voting system meet the standards for certification as prescribed by Section 122.001 of the Texas Election Code. Specifically, the modifications:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevent counting votes for more than the number of candidates for whom the voter is entitled to vote;
8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.

CONCLUSION

The Secretary of State employee examiner recommended certification for the modifications noting that the changes involve minor enhancements. Accordingly, I hereby certify Tally v. 2.9 for use in elections in Texas.

Signed under my hand and seal of office, this **18** day of **June**, 2003.

_____
GEOFFREY S. CONNOR
ASSISTANT SECRETARY OF STATE

The State of Texas

Gwyn Shea
Secretary of State

TO: Ann McGeehan
            Elections Division Director

FROM: Glenn Glover

DATE: April 26, 2002

Subject: Version change approval

Hart Civic Inc. has requested approval for a minor version upgrades for the BOSS, Tally, Ballot Now, and PVS voting system components.

Hart's summary of the features changed indicates no loss or change of core functionality of their voting systems components which had been previously certified to be in compliance with Texas Election laws.

The specific versions changes submitted are as follows:

BOSS: from v 2.8 to 2.9
Tally: from v 2.8 to 2.9
Ballot Now: from v. 1.4 to 1.5
PVS: from 1.15 to 1.16

None of the listed changes appear to be in conflict with Texas Voting System Standards. I approve the version changes based upon review of Hart's submitted summary document.

The State of Texas

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Gwyn Shea
Secretary of State

REPORT OF REVIEW OF
MODIFICATIONS TO HART INTERCIVIC BALLOT NOW VOTING SYSTEM

PRELIMINARY STATEMENT

Hart InterCivic (the "Vendor") presented modifications to its Ballot Now voting system for review by the Secretary of State. The Vendor's documentation was submitted to the Secretary of State's employee voting systems examiner to determine whether the changes were substantial enough to warrant review in a full voting system examination.

BRIEF DESCRIPTION OF BALLOT NOW VOTING SYSTEM

The Ballot Now system is designed to create paper ballots and the means to count the ballot for use with the Vendor's eSlate DRE voting system. The modification presented for review was version 1.5.

FINDINGS

The following are my independent findings, based on written evidence submitted by the Vendor and the findings of the Secretary of State employee voting system examiner.

The modifications to the Ballot Now system meet the standards for certification as prescribed by Section 122.001 of the Texas Election Code. Specifically, the modifications:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevent counting votes for more than the number of candidates for whom the voter is entitled to vote;
8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.

CONCLUSION

The Secretary of State employee examiner recommended certification for the modifications noting that the changes involve minor enhancements. Accordingly, I hereby certify Ballot Now v. 1.5 for use in elections in Texas.

Signed under my hand and seal of office, this **18** day of **June**, 2003.

GEOFFREY S. CONNOR
ASSISTANT SECRETARY OF STATE

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Gwyn Shea
Secretary of State

TO: Ann McGeehan
           Elections Division Director

FROM: Glenn Glover

DATE: April 26, 2002

Subject: Version change approval

Hart Civic Inc. has requested approval for a minor version upgrades for the BOSS, Tally, Ballot Now, and PVS voting system components.

Hart's summary of the features changed indicates no loss or change of core functionality of their voting systems components which had been previously certified to be in compliance with Texas Election laws.

The specific versions changes submitted are as follows:

BOSS: from v 2.8 to 2.9
Tally: from v 2.8 to 2.9
Ballot Now: from v. 1.4 to 1.5
PVS: from 1.15 to 1.16

None of the listed changes appear to be in conflict with Texas Voting System Standards. I approve the version changes based upon review of Hart's submitted summary document.

STATE OF TEXAS

REPORT OF REVIEW OF MODIFICATIONS TO HART INTERCIVIC'S eSLATE VOTING SYSTEM v. 3.0 AND RALLY SYSTEM v. 1.1.13

PRELIMINARY STATEMENT

On May 29, 2003, Hart Intercivic (the "Vendor") presented modifications to its eSlate Voting System for examination and certification. The examination was conducted in Austin, Texas. Pursuant to Sections 122.035(a) and (b) of the Texas Election Code, the Secretary of State appointed the following examiners:

1. Mr. Nick Osborn, an expert in electronic data communication systems;
2. Mr. Tom Watson, an expert in electronic data communication systems;
3. Mr. Barney Knight, an expert in election law and procedure; and
4. Mr. Glenn Glover, an expert in electronic data communication systems.

Pursuant to Section 122.035(a), the Texas Attorney General appointed Dr. Jim Sneeringer, an expert in electronic data communication systems.

The Vendor first demonstrated the system; the examiners then examined their accuracy and security features. Examiner reports on the system are attached hereto and incorporated herein by this reference. After the May 29th examination, the vendor made changes based on the initial examiner reports. The re-examination was conducted on June 25, 2003 at the Secretary of State's office in Austin. Mr. Osborn and Mr. Glover attended this re-examination and their reports are also attached. The version numbers reflect those approved by the independent testing agency.

BRIEF DESCRIPTION OF eSLATE VOTING SYSTEM

The eSlate voting system is a DRE ("Direct Recording Electronic") for elections consisting of: the Ballot Origination Software System ("BOSS"), the Judges Booth Controller ("JBC"), Tally System ("Tally"), the Ballot Now mail ballot system ("Ballot Now"), and the Rally System ("Rally"). The Rally is a software system designed to facilitate the transmittal of precinct election results from substations to the central counting station; it has not been previously certified. The examined versions are eSlate v. 2.0.13, JBC v. 2.0.13, BOSS v. 3.3.44, Tally v. 3.1.18, Ballot Now v. 2.0.9, and Rally v. 1.1.13.

FINDINGS

The following are the findings, based on oral evidence presented at the examination to our examiners, written evidence submitted by the Vendor in support of its application for certification, and the findings of our voting system examiners as set out in their written reports.

The eSlate modifications and the Rally System:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevents counting votes for more than the number of candidates for whom the voter is entitled to vote;

8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.
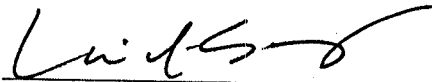

CONCERNS

At the May examination, the vendor experienced problems demonstrating the real time audit log on its Tally central counting station software. The examiners also expressed concerns with Tally's audit log, especially its logging of all accesses to Tally and the lockout procedure when the printer is disabled. The examiners felt that these issues could be addressed in an informal re-examination.

CONCLUSION

The re-examination established to the examiners' satisfaction that the audit log now logs all significant events, including contacts between Tally and precinct results being uploaded via the Rally system. The examiners also confirmed that user access to Tally is properly blocked if the audit printer is disabled.

Accordingly, based solely upon the findings of the independent examiners, I hereby certify the eSlate voting system v. 3.0 (eSlate v. 2.0.13, JBC v. 2.0.13, BOSS v. 3.3.44, Tally v. 3.1.18, Ballot Now v. 2.0.9, and Rally v. 1.1.13) for use in elections in Texas.

Signed under my hand and seal of office, this _10th_ day of _December_, 2003.

Luis Saenz
Assistant Secretary of State

The State of Texas

Gwyn Shea
Secretary of State

REPORT OF REVIEW OF
MODIFICATIONS TO HART INTERCIVIC PRECINCT VOTING SYSTEM

PRELIMINARY STATEMENT

Hart InterCivic (the "Vendor") presented modifications to its Precinct Voting System (PVS) for review by the Secretary of State. The Vendor's documentation was submitted to the Secretary of State's employee voting systems examiner to determine whether the changes were substantial enough to warrant review in a full voting system examination.

BRIEF DESCRIPTION OF PRECINCT VOTING SYSTEM

The PVS consists of a Judges Booth Controller (JBC), a standalone device powered by an uninterruptible power supply and connected to a printer for producing precinct total reports. The JBC is networked by cable to the Electronic Voting Units (EVU), which are touch screen DRE machines designed for voting at the precinct level. Once the voter has cast his or her ballot, the votes are recorded onto both the JBC and the Mobile Ballot Boxes. The EVU is disabled until re-activated for the next voter. After the polls close, the JBC can either print out totals or transfer results by modem to the central counting station. The version presented for review was 1.16.

FINDINGS

The following are my independent findings, based on written evidence submitted by the Vendor and the findings of the Secretary of State employee voting system examiner.

The modifications to the Precinct Voting System meet the standards for certification as prescribed by Section 122.001 of the Texas Election Code. Specifically, the modifications:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevent counting votes for more than the number of candidates for whom the voter is entitled to vote;
8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.

CONCLUSION

The Secretary of State employee examiner recommended certification for the modifications noting that the changes involve minor enhancements. Accordingly, I hereby certify PVS v. 1.16 for use in elections in Texas.

Signed under my hand and seal of office, this **18** day of **June**, 2003

GEOFFREY S. CONNOR

Gwyn Shea
Secretary of State

TO: Ann McGeehan
           Elections Division Director

FROM: Glenn Glover

DATE: April 26, 2002

Subject: Version change approval

Hart Civic Inc. has requested approval for a minor version upgrades for the BOSS, Tally, Ballot Now, and PVS voting system components.

Hart's summary of the features changed indicates no loss or change of core functionality of their voting systems components which had been previously certified to be in compliance with Texas Election laws.

The specific versions changes submitted are as follows:

BOSS: from v 2.8 to 2.9
Tally: from v 2.8 to 2.9
Ballot Now: from v. 1.4 to 1.5
PVS: from 1.15 to 1.16

None of the listed changes appear to be in conflict with Texas Voting System Standards. I approve the version changes based upon review of Hart's submitted summary document.

The State of Texas

Gwyn Shea
Secretary of State

REPORT OF REVIEW OF
MODIFICATIONS TO HART INTERCIVIC BOSS VOTING SYSTEM

PRELIMINARY STATEMENT

Hart InterCivic (the "Vendor") presented modifications to its BOSS voting system for review by the Secretary of State. The Vendor's documentation was submitted to the Secretary of State's employee voting systems examiner to determine whether the changes were substantial enough to warrant review in a full voting system examination.

BRIEF DESCRIPTION OF BOSS VOTING SYSTEM

BOSS is the central counting station software designed for use with the Vendor's eSlate DRE voting system. The modification presented for review was version 2.9 which involved minor enhancements designed to accommodate larger numbers in undervote accumulations and which do not change the core functionality of the BOSS software.

FINDINGS

The following are my independent findings, based on written evidence submitted by the Vendor and the findings of the Secretary of State employee voting system examiner.

The modifications to the BOSS voting system meet the standards for certification as prescribed by Section 122.001 of the Texas Election Code. Specifically, the modifications:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevent counting votes for more than the number of candidates for whom the voter is entitled to vote;
8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.

CONCLUSION

The Secretary of State employee examiner recommended certification for the modifications noting that the changes involve minor enhancements. Accordingly, I hereby certify BOSS v. 2.9 for use in elections in Texas.

Signed under my hand and seal of office, this 18 day of June 2003.

GEOFFREY S. CONNOR
ASSISTANT SECRETARY OF STATE

The State of Texas

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Geoffrey S. Connor
Secretary of State

REPORT OF EXAMINATION OF ELECTION SYSTEMS AND SOFTWARE, INC.'S UNITY ELECTION SYSTEM v. 2.4.2

PRELIMINARY STATEMENT

On January 8, 2004, Election Systems and Software, Inc. (the "Vendor") presented modifications to its Unity Election System v. 2.4.2 for examination. The examination was conducted in Austin, Texas. Pursuant to Sections 122.035(a) and (b) of the Texas Election Code, the Secretary of State appointed the following examiners:

1. Mr. Nick Osborn, an expert in electronic data communication systems;
2. Mr. Tom Watson, an expert in electronic data communication systems;
3. Mr. Barney Knight, an expert in election law and procedure; and
4. Mr. Glenn Glover, an expert in electronic data communication systems.

Pursuant to Section 122.035(a), the Texas Attorney General appointed Dr. Jim Sneeringer, an expert in electronic data communication systems.

The Vendor first demonstrated Unity and the examiners then examined the system. Examiner reports on the system is attached hereto and incorporated herein by this reference.

BRIEF DESCRIPTION OF UNITY

Unity is an integrated suite of modular software programs that enable an election official to enter and maintain a database of jurisdiction and election information, format ballot layouts, and program election equipment. The system also collects, accumulates, and reports the voting results from the vendor's various voting systems. The overall version presented for re-examination was version 2.4.2, which consists of minor changes from previously-certified versions, and consisted of the following components:

Election Data Manager	version 7.2.1.0
Ballot Image Manager	version 7.2.0.0
Optech Image Manager	version 3.2.0.0
iVotronic Image Manager	version 1.2.3.0
Hardware Program Manager	version 5.0.2.0
Data Acquisition Manager	version 5.0.3.0
Election Reporting Manager	version 6.4.2.0
Audit Manager	version 7.0.2.0

FINDINGS

The following are the findings, based on oral evidence presented at the examination to our examiners, written evidence submitted by the Vendor in support of its application for certification, and the findings of our voting system examiners as set out in their written reports.

The Unity Election System:

1. Preserves the secrecy of the ballot;
2. Is suitable for the purpose for which it is intended;
3. Operates safely, efficiently, and accurately;
4. Is safe from fraudulent or unauthorized manipulation;
5. Permits voting on all offices and measures to be voted on at the election;
6. Prevents counting votes on offices and measures on which the voter is not entitled to vote;

7. Prevents counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevents counting votes for more than the number of candidates for whom the voter is entitled to vote;

8. Prevents counting a vote on the same office or measure more than once;

9. Permits write-in voting;

10. Is capable of permitting straight-party voting; and

11. Is capable of providing records from which the operation of the system may be audited.

CONDITION

As noted by one of the examiners, Unity audit log does not record the system shutdown message until the next time the system is brought up; therefore, the audit log must include a record of the system shutdown in real time before this version of the system may be used in Texas.

CONCLUSION

Accordingly, based solely upon the findings of the independent examiners, I hereby certify the Unity Election System v. 2.4.2 for use in elections in Texas, subject to the above condition.

Signed under my hand and seal of office, this 27TH day of April 2004.

LUIS SAENZ
ASSISTANT SECRETARY OF STATE

wyle
laboratories

April 14, 2004

Irene Diaz
Office of Secretary of State
208 E. 10th Street, 3rd Floor
Austin, TX 78701
512-463-5650

Subject: ITA Hardware Qualification Testing of the ESS iVotronic and Model 100 Voting Machines

Attention: Irene Diaz

Dear Ms. Diaz,

At the request of ESS's Ms. Sue McKay, we have been asked to provide you with a status letter regarding current qualification testing activities associated with the iVotronic and Model 100 voting machine hardware.

These two voting machines have completed regression testing as a result of revisions having been made to the machine's firmware. Specifically, the firmware associated with each machine (iVotronic - Release 8.0.0.0, Model 100 – Release 5.0.0.0) was subjected to a source code review and follow-on functional regression testing to verify continued functionality of the hardware following implementation of the of the firmware revisions.

The iVotronic and Model 100 were also successfully subjected to the additional electrical tests as required by the 2002 Voting Systems Standards during these regression test efforts.

The results of the source code reviews as well as the machine-level functional and hardware testing performed are documented in Wyle Test Report No.s 48489-01, dated February 23, 2004 and 48489-02, dated February 25, 2004. End-to-end system level testing using the ESS Unity Election Management System Software, Release 2.4.2 in conjunction with the aforementioned Firmware releases was performed by the software ITA, CIBER, Inc. Results of this testing are documented in CIBER report Version 1.1, dated March 23, 2004.

If you require any additional information or have any questions, please contact me at 256.837.4111, extension 590, or FAX 256.830.2109.

Sincerely,

Dawn K. Bates
Contracts Manager

ciber

April 12, 2004

Office of Secretary of State
208 E. 10th Street, 3rd Floor
Austin, TX 78701
512-463-5650

Attention: Irene Diaz
Subject: Qualification Testing

Dear Ms. Diaz,

This is to notify you that the qualification testing performed on the ES&S Unity Election
Management System Version 2.4.2 has successfully been completed. It has been demonstrated
that Unity Election Management System Version 2.4.2 successfully met the requirements for the
functional testing and technical data package criteria of the FEC Standards for Punchcard,
Marksense, and Direct-Recording Electronic Voting Systems 2002. The source code was
reviewed to the FEC standards of 1990.

Sincerely,

Shawn Southworth
ITA Practice Director
Ciber
7501 South Memorial Parkway
Suite 107
Huntsville, AL 35802

April 8, 2004

To: The State Election Director

Re: ES&S NASED Qualification Number

ES&S is pleased to announce that an official NASED number has been issued for the corporation's current election system release. The number will be posted on the NASED web site within one week.

Number issued: **NASED # = N-1-02-12-11-001 (1990)**

Software Systems included:
Unity Election Management Software v2.4.2

Hardware Systems included:
- iVotronic DRE voting system v8.0.0.0
- Model 100 Document Based OMR precinct count system v5.0.0.0

The software and hardware have been tested by an accredited ITA, both at the component level and as an integrated system as required by the FVSS 2002. In addition, the hardware components were tested successfully to all new environmental tests required under the FVSS 2002. The Model 650 Document Based OMR central count system v1.2.0.0 will be forthcoming and will be included under this NASED number.

Respectfully:

Sue L McKay
Certification Director

Barney Knight
& Associates
Attorneys at Law

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BarneyKn@aol.com
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Attorneys
Barney L. Knight
Sheila I. Jalufka
Paige H. Sáenz

January 19, 2004

Ann McGeehan
Deputy Assistant
Secretary of State
P.O. Box 12060
Austin, Texas 78711-2060

Re: Election System & Software ("ES&S")-Unity Election System V. 2.4.2; iVotronic DRE, V. 8.0.0.0; Votronic DRE, V. 5.19; Model 100 Precinct Count System, V. 5.0.0.0; Model 150/550 Central Count, V. 2.1.0.0Q; Model 650 Central Count, V. 1.2.0.0; the Optech Eagle Precinct Count, V. HPS 1.28, APS 1.50, CPS 1.02a, and the Optech IV-C Central Count, V. 1.06a.

Dear Ms. McGeehan:

Pursuant to my appointment as an examiner under Chapt. 122, Texas Election Code, I examined the above referenced software and hardware (collectively the "Election Systems") as presented by ES&S for examination. I examined the Election Systems with respect to Texas Election Law and procedure on January 8, 2004.

This report is concerned solely with the ability of the Election Systems, and each individual module thereof, to function in compliance with Texas Election Law, and is based on the presentation by ES&S and the testing completed by the examiners on January 8th. ES&S gave a well organized presentation, and the casting, tabulation and reporting of votes, together with the remainder of the examination, did not evidence any function that was not in compliance with Chapt. 122, Subchapt. A, Texas Election Code, for use in an election, except as specifically noted below. However, no opinion is expressed regarding the suitability of the Election System for the purposes of or use by any jurisdiction.

The Unity Election System v. 2.4.2 functions with all of the ES&S product line referenced above. And, in that respect, the testing and examination of the Election Systems was divided roughly into three parts. One grouping consisted of the Votronic voting station, the Optech Eagle and the Optech IV-C. A second group consisted of the Model 100, the Model 650 and the Model 150/550. The iVotronic was also voted and included in the tabulation. The

third grouping was election central and the tabulation and reporting of the election results from each of the above groups.

The earlier versions of the above referenced machines, devices and increments of the Election System have been previously certified.

Group One. A test deck of ballots was provided and the examiners added a material number of additional ballots, all to be read and processed separately through the Optech Eagle and the Optech IV-C. The Votronic was included in this group and additional votes were cast on the Votronic. Other than inclusion of the Votronic for convenience, this group was configured because it uses "arrow" ballots. The results from the Optech Eagle, the Optech IV-C and the Votronic were each separately verified, and then all were transported to election central for a central count combined tabulation and election report. Due to an issue, discussed below, additional ballots were cast and this process from the precinct level through election central was repeated. Except as noted specifically below, the examination and testing evidenced that the machines and devices included in Group One, and Unity Election System v. 2.4.2 functioning with the group as election central, operated in compliance with Chapt. 122, Texas Election Code.

Group Two. Except for the retesting and re-voting, the above process was also completed on the iVotronic, the Model 100, the Model 650 and the Model 150/550. Again, except as noted specifically below, the examination and testing evidenced that the machines and devices included in Group Two, and Unity Election System v. 2.4.2 functioning with the group as election central, operated in compliance with Chapt. 122, Texas Election Code.

Exceptions and recommendations.

Exception No. 1. Tabulation of Paper Ballots. (1) Felt tip pens were provided and used in the marking of the paper ballots. This resulted in the Optech IV-C and the other tabulation models reading and recording as a vote a bleed through mark from the opposite side of the ballot. *Recommendation.* (a) I recommend the Secretary prohibit the use of felt tip markers with this Election System, and specify the pens or markers that may be used with this Election System. (b) I also recommend a procedure be adopted that requires double-sided paper ballots to have one side be "off-set" in a manner that will prevent a ballot mark in a race on one side of the ballot from lining up with a ballot mark for a race on the opposite side. The "bleed through" issue is potentially material. And, there is a real potential for such an event to affect a race and not be discovered unless a recount is requested.

Exception No. 2. Tabulation of Paper Ballots. The Optech IV-C read one very lightly marked vote approximately 50% of the time as a vote and 50% of the time as blank. This may be unavoidable, but the preference is that it read the ballot the same way each time. *Recommendation.* I recommend the Secretary give this matter some consideration in conjunction with Exception No. 1 above. It appears whether or not the tabulation device records the vote, or does not, may depend in part on the way the ballot is positioned when it runs through the tabulation device. However, this may be an issue that can only be effectively addressed in a hand recount.

Exception No. 3. Ballot Set-Up. At least in part due to all standard procedures not being followed in setting-up the test ballot, the candidate names were switched on one race. Except for a careful audit, the resulting error would not have been found and the votes for the candidates would have been reversed. ES&S states that adequate procedures are in place, between their proofing ballots and the election program and requiring the election jurisdiction to also proof the ballots. *Recommendation.* I recommend the staff review this issue to determine if any additional procedure or requirement will prevent this potentially serious possibility. One possibility would appear to require specific pre-testing by race prior to final election set-up.

Exception No. 4. Audit Log Printer. The Unity Election System at election central has a functioning audit log printer. However, at least some functions on the audit log printer are still not recorded on a real-time basis. For example, one observed failure to record real-time was that if the election system is exited or closed the audit log does not record that action until the next time when the election program is started up or accessed. *Recommendation.* I recommend the Secretary require the real-time audit log printer to record on a real-time basis each event, function or interface with the election system.

Summary.

Properly used with the appropriate procedures and avoidance of human error that can be present in any election, the Election System appears generally to function in compliance with the Texas Election Code, and to accurately tabulate and report results. However, there are several recommendations for improvements that should be required pursuant to Chapt. 122, Texas Election Code.

I recommend the iVotronic and Votronic be certified as meeting the requirements of Chapt. 122, Subchapt. A, Texas Election Code.

I recommend the Unity Election System V. 2.4.2 central election reporting programs be certified as meeting the requirements of

Chapt. 122, Subchapt. A, Texas Election Code, subject to the following: (1) the real-time audit log printer being modified to require every event be printed and logged real time; (2) procedures being adopted to require specific race by race testing of the tabulation software and the paper ballots prior to the certification of the ballot -- to make certain the names and places in the electronic election set-up and tabulation program are in the same order as the names printed on the ballot; and (3) the staff examine and confirm the sufficiency of these actions.

I recommend the Secretary determine an appropriate pen or marker that must be used by ES&S and voting jurisdictions, in order that a mark on one side of a ballot will not bleed through the ballot when read with the following equipment: Model 100 Precinct Count System, V. 5.0.0.0; Model 150/550 Central Count, V. 2.1.0.0Q; Model 650 Central Count, V. 1.2.0.0; the Optech Eagle Precinct Count, V. HPS 1.28, APS 1.50, CPS 1.02a, and the Optech IV-C Central Count, V. 1.06a (collectively the "Tabulation Equipment"). I also recommend the following with respect to the Tabulation Equipment: (1) the Secretary specify that the front side and the reverse of ballots to be used with the Tabulation Equipment be off-set in a manner to prevent a voter selection mark on one side of the ballot from lining up with a voter selection mark on the opposite side; and (2) the Secretary's staff examine use of the Tabulation Equipment with the approved pen or marker and off-set ballot to assure that a vote on one side of a ballot will not affect the voter's choice in a race on the other side of the ballot.

If the Secretary's staff takes these steps and determines the above listed Tabulation Equipment functions properly with the specified pens/markers and off-set ballots, I recommend the above listed Tabulation Equipment be certified by the Secretary as meeting the requirements of Chapt. 122, Subchapt. A, Texas Election Code.

Sincerely,

Barney L. Knight

ES&S

The ES&S systems were re-examined in Austin on January 8, 2004. The names and releases of the hardware and software are as follows:

Unity - version 2.4.2 - an election setup, and central accumulator and reporting system.

Unity subsystems:
Audit Manager v- 7.0.2.0
Election Data Manager – v- 7.2.1.0
Optech Image Manager – v- 3.2.0.0
ES&S Image Manager – v – 7.2.0.0
Hardware Programming Manager – v – 5.0.2.0
Data Acquistion Manager – v – 5.0.3.0
Election Reporting Manager – v – 6.4.2.0

Model 650 – firmware v. 1.2.0.0 - optical central-counting scanner
Model 100 – firmware v. 5.0.0.0 - optical precinct-counting scanner
Model 150/550 – firmware v. 5.0.0.0 - optical central counting scanners
Model IV-C – firmware v. 1.06a - optical central counting scanner
Eagle - firmware v. 1.50APS,1.28 HPS, 1.02 CPS - optical precinct-counting scanner
iVotronic - version 8.0.0.0 - DRE voting machine
Votronic - version 5.19 - DRE voting machine

The examination revealed two serious problems and a few minor problems with the systems:

- An op-scan ballot marked with the pens handed out by the vendor caused a "bleed-through" mark to be counted incorrectly. This reveals a potentially serious problem. The "bleed-through" can cause a candidate on the opposite side of the ballot to lose a vote because the errant mark triggers an overvote.

  If the ballot layout is done correctly, the marking positions will be offset so that a "bleed-through" will not be read. However, a ballot may intentionally be designed to cause this problem.

  This can be prevented by poll workers issuing voters the correct marking pen. An explicit warning about using pens that can bleed through (e.g. Sharpies) should be part of the documentation. There is no way to guarantee that the wrong pen will not be used (perhaps intentionally) in a precinct. It was the vendor who issued the examiners the wrong pens.

- When the Model IV-C and Eagle ballots were accumulated in Unity, the results were incorrect. It was explained that the ballots were coded for a previous test election. There was no indication of a problem by Unity. The fact the examiners were checking for specific counts revealed the error.

  Unity should have detected an election setup mismatch. To prevent this a checksum, CRC or some other code should be coded in the setup. Additionally, an L&A test which has various counts for the candidates would reveal a mismatch.

  When Unity was re-programmed to match the Eagle/IV-C ballots, it tallied correctly.

- The Report Manager audit log did not indicate the program was exited, in real-time. Only after the program was restarted did the message print.

- The message on the Unity audit log was inconsistent regarding "replacemode" when loading the results from Model 100 versus the iVotronic.

Conclusion

The "bleed-through" problem is not easy to correct. Explicit warnings about using the correct pens should be communicated to the precinct workers.

The election setup mismatch problem (between Unity and the Model IV-C) could have been prevented procedurally (i.e. a good L&A test with different expected results for each candidate). However, since it occurred at the examination, it indicates the possibility that a good L&A test may not happen . Therefore, the vendor should find a way to prevent an election mismatch programmically.

The second two problems mentioned can easily be corrected.

The systems worked well overall and do meet the standards outlined in the Texas Election Code. I recommend certification for systems but the problems indicated should be addressed before the next examination.

Tom Watson
Examiner

The State of Texas

Geoffrey S. Connor
Secretary of State

MEMORDUM

TO: Ann McGeehan
Elections Division Director

FROM: Glenn Glover
Voting System Examiner

DATE: January 15, 2004

A voting systems certification examination was held at the Radisson Town Lake Hotel on Thursday, Jan. 8, 2004, administered by the Office of the Secretary of State Elections Division .

ES&S submitted their Voting System Product Suite for examination and certification by the State of Texas examination board. The ESS Voting System Product Suite consists of the following components:

iVotronic DRE Voting System 8.0.0.0
Model 100 OMR Precinct Counter 5.0.0.0
Model 650 1.2.0.0
Model 150/550 Central Count 2.1.0.0Q
Optech Eagle Precinct Count HPS 1.28, APS 1.50, CPS 1.02a
Optech IV-C Central Count 1.06a
Votronic DRE Voting System 5.19
Unity Election System Software 2.4.2
Election Data Manager (EDM) 7.2.1.0
iVotronic Image Manager 1.2.3.0
ES&S Image Manager 7.2.0.0
Optech Image Manager 3.2.0.0
Hardware Program Manager (HPM) 5.0.2.0
Data Acquisition Manager (DAM) 5.0.3.0
Election Reporting Manager (ERM) 6.4.2.0
Audit Manager 7.0.2.0
Figure 1

ESS began the certification presentation with a discussion of issues regarding their voting systems. ES&S discussed their versioning conventions, the Independent Testing Authority review process and in general terms security for their product suite. After the discussion, the examiners evaluated the Optech Eagle Precinct Count & Optech IV-C Central Count Scanner

examiners began a test election on the Optech IV-C and Optech Eagle Scanners. The test identified an irregularity with the Optech IV-C scanning function. The ink of a "sharpie" pen had soaked through one test ballot and had appeared as a mark on the other side of the ballot. The Optech IV-C erroneously counted a vote in a contest on the reverse side of the ballot because the ink had soaked through to the exact position where a candidate selection would have been marked/voted.

The examination team wanted to replicate the Optech IV-C scanner's miscounts of the bleed-through ink ballot. They fed the same ink spotted ballot multiple times into the Optech IV-C with inconsistent results – sometimes the contest was counted and other times the contest was not counted. ES&S explained that they recommend that the alignment of races on a printed ballot be offset as not to have a contest selection position directly behind another contest selection position on the reverse side of the ballot page, that pencils be used to mark the ballot so as to prevent ink soaking through the ballot, and that customers use their Ballot Image Manager product to create ballot layouts that automatically provide position offsets on the ballot so as to prevent this anomaly from happening. ES&S was unable to produce upon request their Optech IV-C documentation concerning pencil and alignment recommendations.

The examination continued with testing of the other voting components presented to the panel. The Model 150/550 and iVotronic DRE accurately tallied and uploaded to the Unity system with no problems revealed. The panel also examined the Election Reporting Manager's new capability of manually loading scanner totals from Optech IV-C's 3.5 inch diskettes and from the Optech Eagle memory packs; no problems were observed.

The Unity ERM Reporting/Display computer was evaluated and proved to be accurate in reporting election results. It was noted that the attached audit log printer did not report an "exit or close election" event from the software until the next election had begun. An "exit or close election" event should be printed immediately to the continuous-feed printer because of its' significance as an election event.

After review of the documentation and ES&S's presentation of their voting equipment, I recommend the following:

1) Optech IV-C Central Scanner only be certified for use under the following conditions
    a) the Optech IV-C Central Scanner has a sign, easily readable by the operator, "pencil marked ballots only".
    b) the Optech IV-C Central Scanner documentation / manual reflect the pencil and ballot alignment guidelines recommended by ES&S.
    also ballots scanned into the Optech IV-C meet the following criteria
    c) ballots can only be voted with pencils
    d) ballot image layouts have contests aligned so as not to have a contest selection area directly behind a contest selection area on the reverse side of the ballot
2) Full certification of all other ES&S voting system components identified in Figure 1. I find that these components are in compliance with Voting System Certification requirements of the Texas Administrative Code and should be approved for use in Texas elections.

DEPARTMENT OF INFORMATION RESOURCES

P.O. Box 13564 ◆ Austin, TX 78711-3564 ◆ www.dir.state.tx.us
Tel: (512) 475-4700 ◆ Fax: (512) 475-4759

February 2, 2004

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Ms. Ann McGeehan
Deputy Assistant
Office of the Secretary of State
1019 Brazos Street
Austin, TX 78701

RE: Examination of the Unity Election System Version Release 2.4.2 and vote tabulation devices from Election Systems and Software (ES&S)

Dear Ms. McGeehan:

I attended a scheduled examination January 8, 2004, at 9:30 am, for the purpose of examining the voting systems from Election Systems and Software (ES&S). The report below summarizes my findings.

Voting Systems Versions

Hardware/Software Version

Unity Election System v2.4.2, last certified May 2003
Unity Election System is comprised of the following subsystem modules:
Election Data Manager v7.2.1.0
IVotronic Image Manager v1.2.3.0
ES&S Image Manager v7.2.0.0
Optech Image Manager v3.2.0.0
Hardware Programming Manager v5.0.2.0
Data Acquisition Manager v5.0.3.0
Election Reporting Manager v6.4.2.0
Audit Manager v7.0.2.0

Hardware
Model 100 Precinct Count System v5.0.0.0
Model 650 Central Count System v1.2.0.0
Model 150/550 Central Count v2.1.0.0Q
Optech Eagle Precinct Count v HPS 1.28, APS 1.50, CPS 1.02a

DRE voting systems
Ivotronic DRE audio balloting system v8.0.0.0
Votronic DRE Voting System v5.19

System description

Unity is an umbrella marketing designation that includes all of the software modules noted above. The modules are upgraded as a single package; none of

them can be upgraded individually.

ES&S provided a list of functional changes from the prior version of Unity. Most of the changes were to peripheral functions, usually for minor bug fixes. The core functionality demonstrated in prior versions has not been changed. The new version just allows tabulated totals from "arrow" systems to be brought over to Unity. ["Arrow" systems are those in which a voter casts a vote by connecting arrows beside a candidate's name (e.g. "candidate name" => <=) with a solid line. This is in contrast to "oval" systems in which a voter casts a vote by filling in an oval on the ballot.]

ES&S explained the versioning conventions that identify all their software and firmware releases. For purposes of voting systems examinations, the relevant conventions are as follows:

- First number is reserved for a new release or a major functional revision
- Second number is reserved for minor functional revisions
- Third number is reserved for bug fixes
- Fourth number is reserved for one-off functionality, usually state specific

In addition to the new revisions of software and firmware, ES&S personnel explained the Provisional Ballot functionality in response to a query from the Texas Secretary of State.

System performance

The arrow system had an interesting problem due to the way the test ballots were printed. The examiners used a "Sharpie" pen that bled through the ballots. The test election ballots were not properly designed, and the pen bled through to an arrow on the reverse side of the ballot and made it appear as though the voter had overvoted a contest on the reverse side.

The ballot was red in all four orientations and the overvote was counted on two of the orientations, indicating that the scanner was sensitive to the bleed-through only in one set of sensors.

ES&S personnel indicated that their ballot preparation software prevents such alignment, but were not used to prepare these ballots. In addition, they advise election officials to use high-solid markers rather than Sharpie-type markers to avoid this kind of problem.

Other than this self-inflicted problem, the arrow systems appeared to count votes correctly. The votes appear to import into Unity correctly, along with votes from other equipment.

The audit log functionality was not tested, however, and should be reviewed during the next examination for this vendor.

The oval systems also appeared to count votes correctly and import them into Unity correctly. It was noted that the log printer for Unity does not print the system shutdown message until the next time the system is brought up. This may lead an auditor to believe that a user's session was not terminated correctly or that the log might be missing some key data. Therefore it is recommended that the system shutdown be recorded on the real-time log before the system exits.

Recommendations

The Department of Information Resources (DIR) finds no technical objection to certifying the Unity Election System and firmware demonstrated at this examination.

Respectfully,

Nick Osborn
Systems Analyst

MM:NO:sk

Voting System Examination
Election Systems & Software (ES&S)

Prepared for the
Secretary of State of Texas

James Sneeringer, Ph.D.
Designee of the Attorney General

This report is the findings of the Attorney General's designee from an examination of the equipment listed, pursuant to Title 9, Chapter 122 of the Texas Election Code, section 122.036(b).

Examination Date	January 8, 2004
Report Date	January 19, 2004

ES&S offers a complete line of products for every aspect of conducting an election, including election setup, DRE, optical scanning, punch-card reading, tallying and reporting.

Components Examined	Type	Version	
EDM- Election Data Manager – Election Setup	Part of Unity	7.2.1.0	
iVotronic Image Manager	Part of Unity	1.2.3.0	
ES&S Image Manager		7.2.0.0	
Optech Image Manager	Part of Unity	3.2.0.0	
HPM – Hardware Program Manager – Programs PEBS, EPROMS, etc from election definition	Part of Unity	5.0.2.0	
DAM – Data Acquisition Manager (Client)	Part of Unity	5.0.3.0	
DAM – Data Acquisition Manager (Host)	Part of Unity	5.0.3.0	
ERM – Election Reporting Manager	Part of Unity	6.4.2.0	
Audit Manager	Part of Unity	7.0.2.0	
iVotronic DRE Voting System	Voting	8.0.0.0	*
Model 650	Scanner	1.2.0.0	*
Model 100 OMR Precinct Counter	Scanner	5.0.0.0	*
Model 150/550	Scanner	2.1.0.0Q	
Eagle	Scanner	1.50 APS 1.28 HPS 1.02a CPS	*
IV-C	Scanner	1.06a	
Votronic	DRE	5.19	

* Unchanged from the last time it was examined

Voting: Characteristics of the Votronic and iVotronic DRE

Election Setup	Personalized Electronic Ballots (PEB) and separate flash memory cards are created with Unity software. Nothing is pre-programmed in the terminals; all the election information is in the PEB and flash memory. Anything that is precinct specific goes in the PEB. The flash memory is only required if the election is large or there are image or audio files.
Zero-total report	On the thermal printer in the communication pack.
Authorization to vote / Ballot selection	There are two modes: • Voter inserts a PEB, which is created at a Supervisor station using a supervisor PEB, both of which are red to distinguish them from voting stations and PEB's. The voter's PEB cannot be reused without re-activation. • Poll worker inserts a PEB, immediately removes it, and selects the appropriate ballot. The PEB is retained by the poll worker and is reusable without re-activation.
View / Vote	LCD display / touch screen
Vote Storage	Three redundant flash memories
Precinct Consolidation	Allowed using PEB's. An audit log of this is kept in memory and can be printed at the precinct.
Transfer Results	PEB transported or data transmitted by modem to Unity software (or a regional site from which data is sent to the Unity software at central counting). The data is protected by a Cyclical Redundancy Check (CRC).
Print precinct results	On the thermal printer in the communication pack.
Straight party / crossover	Yes. A straight-party vote cannot cancel crossover votes that have already been selected, which protects the voter against mistakenly canceling a crossover vote.
ADA	Yes. Because it is battery-powered, the iVotronic can be taken to the curbside for voting. However, this was not demonstrated, because the Secretary of State verifies ADA compliance.

Setup & Tabulation: Characteristics of the Unity System

Tamper Resistance	Cyclical Redundancy Check (CRC) on each record in the election files.
OS access	Not permitted during tabulation.
Real-Time Audit Log	Yes.
Data Integrity	There are no special transaction-processing features. However, according to ES&S, there is no need, because all the data is written in a single write statement, making it impossible for partial results to be entered into the database. Also, it is easy to recalculate everything if a problem is suspected, and everything is automatically re-calculated when you request a canvass report. Since a canvass report would always be requested, this is satisfactory. In short, it is nearly impossible to get an incorrect result and not know it.

Notes	• The Data Acquisition Manager is used in regional centers to collect precinct data for forwarding to central counting by modem or by carrying a PEB. • The Data Acquisition Manager does not need to know election-specific data or understand the results. It does not tabulate.

Concerns

1.	During testing, the optical scanners were found to sometimes read marks that bleed through from the other side of the ballot. **Recommendation:** The Secretary of State should consider regulations requiring that the areas that a voter marks on the two side of the ballot never align, so that any marks that bleed through will not be read on the other side. It might also be useful (but less important) to have regulations about the types of writing instruments to be used for marking optical ballots. Improving the scanners themselves is probably very difficult and not cost effective.
2.	During the exam, an election was incorrectly tabulated because the ballot layout did not correspond to the programming of the scanner. ES&S says that (a) this would not occur if the ballot were laid out using their software and (b) it would normally be caught by their procedures, such as logic and accuracy testing and proofing the ballots for candidate order. **Recommendation:** When preparing for an exam, ES&S should follow their own standard procedures. I do not see how this problem can be solved by changes in their system. Note that L&A test decks should not have the same number of votes for multiple candidates, since you then cannot detect errors in candidate ordering.
3.	It is my understanding that multiple provisional ballots can be assigned the same ID. If this were to happen, all ballots with the same ID would have to be counted or none would be counted. **Recommendation:** The ES&S system should reject a second provisional ballot with the same ID, and force the election workers to assign another, unique ID. Until this change is made, certification should carry the following conditions: a) The follow procedure should be required: Labels should be preprinted with unique provisional ballot IDs. When such an ID is used, its label should be removed and placed on the documentation in the provisional envelope, thus preventing its accidental re-use. b) Certification should expire on January 1, 2005, unless the system is changed to reject duplicate use of the same provisional ballot ID.

ES&S has an excellent product line and it was a very successful exam.

The State of Texas

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Gwyn Shea
Secretary of State

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REPORT OF EXAMINATION OF MODIFICATIONS TO ELECTION SYSTEMS AND SOFTWARE, INC.'S iVOTRONIC VOTING SYSTEM

PRELIMINARY STATEMENT

On September 11, 2002, Election Systems and Software, Inc. (the "Vendor") presented modifications to its iVotronic voting system for examination and certification. The examination was conducted in Austin, Texas. Pursuant to Sections 122.035(a) and (b) of the Texas Election Code, the Secretary of State appointed the following examiners:

1. Mr. Nick Osborn, an expert in electronic data communication systems;
2. Mr. Tom Watson, an expert in electronic data communication systems;
3. Mr. Barney Knight, an expert in election law and procedure; and
4. Mr. Glenn Glover, an expert in electronic data communication systems.

Pursuant to Section 122.035(a), the Texas Attorney General appointed Dr. Jim Sneeringer, an expert in electronic data communication systems.

The Vendor first demonstrated the system, followed by review and testing by the examiners. Examiner reports on the system are attached hereto and incorporated herein by this reference.

BRIEF DESCRIPTION OF iVOTRONIC

The iVotronic is a direct recording electronic system (DRE) with accessibility components used for precinct voting and accumulation. The system consists of one or more voting terminals and a supervisor Personalized Electronic Ballot (PEB), which election officials use to activate and load the appropriate ballot into the terminal. The examined version was iVotronic, v. 7.4.5.0. The last version certified for use in Texas is 7.2.5.0.

FINDINGS

The following are my independent findings, based on oral evidence presented at the examination, written evidence submitted by the Vendor in support of its application for certification, and the findings of our voting system examiners as set out in their written reports.

The modifications to the iVOTRONIC Voting System, subject to the condition below:

1. Preserve the secrecy of the ballot;
2. Are suitable for the purpose for which it is intended;
3. Operate safely, efficiently, and accurately;
4. Are safe from fraudulent or unauthorized manipulation;
5. Permit voting on all offices and measures to be voted on at the election;
6. Prevent counting votes on offices and measures on which the voter is not entitled to vote;
7. Prevent counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevents counting votes for more than the number of candidates for whom the voter is entitled to vote;
8. Prevent counting a vote on the same office or measure more than once;
9. Permit write-in voting;
10. Are capable of permitting straight-party voting; and
11. Are capable of providing records from which the operation of the system may be audited.
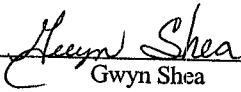
CONDITION

The vendor must submit revised user instructions to the Secretary of State designed to re-emphasize the need to test for the presence of votes on the PEB prior to opening the system for voting.

CONCLUSION

The examiners were disturbed by the ability to run a logic and accuracy test with votes resident on the PEB. The vendor demonstrated that this is an administrative issue, but one that may put pressure on election officials not as familiar with the system as the vendor. Accordingly, I hereby grant the Vendor's application for certification of the above modifications to the iVOTRONIC voting system, subject to the above condition.

Signed under my hand and seal of office, this _11th_ day of _December_, 2002.

Gwyn Shea
Gwyn Shea
Secretary of State