The State of Texas

Information Technology Division
P.O. Box 12887
Austin, Texas 78711-2887

Phone: 512-463-5609
Fax: 512-463-5678
Dial 7-1-1 For Relay Services
www.sos.state.tx.us

Roger Williams
Secretary of State

TO: Ann McGeehan
Elections Division Director

FROM: Glenn Glover
Voting System Examiner

DATE: May 27, 2005

A voting systems certification examination was held at the Office of the Secretary of State Elections Division on Wednesday, May 25, 2005.

Hart InterCivic submitted the following election products for certification:

Ballot Origination Software System (BOSS)	v 4.1.0
Ballot Now: Paper Ballots	v 3.0.24
eSlate: Voting Device	v 3.1.0
JBC: Judge Booth Controller	v 3.1.0
Tally: Vote Tabulation System	v 4.1.0
Rally: Vote Transfers to Tally	v 2.1.0
eCM Manager	v 1.0.7
SERVO: Warehouse Management System	v 3.0.17
eScan: Precinct based paper ballot scanner	v 1.0.0

Hart collectively refers to the above components as System 5.0.

Hart began the examination with the announcement that Hart Intercivics and their election voting system products had attained BS7799 certification which they explained is the highest possible standard of information security awarded by the British Standards Institute.

All System 5.0 components have been previously reviewed by the examiners with the exception of the eScan and eCM products. Hart introduced the eScan and explained its' role in the election process. The eScan accepts paper ballots, immediately scans and either accepts or rejects the ballot. If the ballot is rejected the device will present a message with an explanation as to why the ballot was rejected (overvote, undervote, etc.). If the ballot is accepted, then the eScan will count the vote and store it in the mobile ballot box (MBB) and create a "cast vote record" which is a representation of how a particular ballot's races were voted. In practical terms, after marking a ballot, a voter feeds the ballot directly into eScan at the precinct. Voters are immediately notified if their ballot was accepted or rejected with messages displayed on the eScan screen. If rejected, the ballot is kicked back to the voter. Absentee ballots can also be processed with the

eScan. Hart stated that the eScan does not use optical scan but uses digital scan technology. They explained the differences between the two scanning methodologies and the superiority of digital over optical scanning.

Hart presented to the examiners their new voting security infrastructure centered on the eSlate Cryptographic Module (eCM). The eCM is a USB security key that is required for access to secure functions in the BOSS, Tally, Rally, Ballot Now, and SERVO applications. eCM is setup with the eCM Manager, a software application that reads and writes a "key ID" and a "signing key" to an eCM. The eCM security data is used by the BOSS application to create the ballot formats that must also be present in the eCMs used in the Tally, Rally, Ballot Now, and SERVO applications. Several eCMs are created for an election with separate eCM used with each computer running an eSlate Electronic Voting System software application (BOSS, Tally, Rally, Ballot Now, and SERVO). Each copy of the eCM to be used must contain the same security data. The security data consists of a Key ID and a HASH. The Key ID is a user-supplied identification number for an eCM. The HASH is a SHA-1 hash value of the Key ID and Signing Key. The signing key is true 128-bit random number used to cryptographically protect data.

The examiners proceeded with a test election using the System 5 components. After voting and tabulating the results, I compared the actual ballots with the cast vote records captured in the eSlate MBB's which were extracted using the SERVO software. The cast vote records for the particular eSlate unit that I voted on corresponded to the ballot races I had voted.

After review of the documentation, examination and test voting with the System 5 components, I find that Hart's System 5 components are in compliance with the Texas election code and recommend that the BOSS v 4.1.0, Ballot Now v 3.0.24, eSlate System v 3.1.0, JBC v 3.1.0, Tally v 4.1.0, Rally v 2.1.0, eCM Manager v 1.0.7, SERVO v 3.0.17 and eScan v 1.0.0 be certified for use in the State of Texas.