


Exhibit N



"Shawn Southworth"
<ssouthworth@ciber.com>
05/31/2005 05:20 PM

To "Hancock, Brian" <bhancock@eac.gov>
cc
bcc

Subject AutoMark Report

History:  This message has been replied to and forwarded.

Brian,

Here is the final report for AutoMark.

Thanks,



Shawn 2005-05-27 AIMS 1.09 with ESS 2.43 final report.pdf

AutoMark Technical Systems Software Qualification Test Report

Original Report for AIMS 1.0.9 created 05/27/2005

Prepared For:

The National Association of State Election Directors

Prepared By: _____

**CIBER, Inc.
Independent Test Authority**

ciber

**CIBER, Inc.
7501 South Memorial Parkway
Suite 107
Huntsville, AL 35802**

Proprietary

1 INTRODUCTION

Ciber is pleased to submit this report summarizing the qualification testing of the AutoMark Information Management System (AIMS) Version 1.0.9 in collaboration with the previously certified Election Systems & Software (ES&S) Unity Version 2.4.3.

1.1 TEST AGENCY TEST AGENCY HISTORY AND CAPABILITY

Ciber Inc. has been providing IT consulting services for over 20 years. Although the Independent Test Authority (ITA) division name has changed due to an aggressive acquisition and merger market, the ITA division of the company has had the same leadership in place since inception. Founded in 1974, the company's consultants now serve client businesses from 60 US offices, 22 European office and 3 offices in Asia. With offices in 17 countries, Ciber's 8000 IT specialists continuously build, test and upgrade our client's systems to "competitive advantage status." Ciber provides a single source for IT solutions, including:

- Full-solution ASP services
- Applications maintenance and support
- Testing and IQA
- Web and database hosting
- Enterprise solutions, including SAP, Oracle and Peoplesoft
- Application outsourcing
- eBusiness, from architecture through execution
- Knowledge management and training

The company has been involved in numerous QA and IQA testing projects for commercial, state, and federal government customers. Ciber has an interim accreditation as an ITA through the National Association of State Election Directors (NASSED).

1.2 DOCUMENT OVERVIEW

This document consists of five main sections: Introduction, Qualification Test Background, System Identification, System Overview, and Qualification Test Results. The Qualification Background gives general information about the qualification test process. The System Identification Section gives information about the AutoMark software and supporting hardware. The System Overview describes the software and the Qualification Test Results Section provides a summary of the results of the testing process.

Detailed information including the Technical Data Package (TDP) Review, Source Code Review, and Functional Test Review are included as appendices to this report.

Qualification Test Background

The primary purpose of Software Qualification Testing is to demonstrate compliance with levels of design, performance, and quality claimed for them by manufacturers. The tests are also intended to demonstrate that the system meets or exceeds the requirements of the Federal Election Commission (FEC) Voting System Standards.

The scope and detail of the requirements for qualification have been tailored to the design and complexity of the software submitted by AutoMark for testing. The qualification test procedure is intended to discover defects in software design and system operation which, should they occur in actual election use, which could result in failure to complete election operations in a satisfactory manner.

The tests have been designed to evaluate system compliance with the requirements of the 2002 FEC Voting System Standards. The examination will include selective in-depth examination of software, the inspection and evaluation of system documentation and source code.

2 SYSTEM IDENTIFICATION

AutoMark submitted Version 1.0.9 of the AIMS software to work in conjunction with the ES&S Unity 2.4.3 Electronic Voting System for certification under the 2002 Voting System Standards. The Unity 2.4.3 system had been previously certified and is being utilized in this submission as the complete voting system package and the AutoMark software and hardware are being treated as add on components to the ES&S system.

The scope of this qualification effort was to verify that the AutoMark software and hardware meets the FEC 2002 VSS and that they function with the Unity 2.4.3 system. Ciber will be using the hardware for system testing only. The hardware ITA will be conducting the full hardware qualification. Ciber's qualification testing consisted of inspecting the source code and documentation as well as functional system testing to ensure compliance with the FEC 2002 VSS.

Below is a list of the components that were utilized:

Software

- AutoMark AIMS 1.0.9
- ES&S Unity 2.4.3

COTS

- Windows XP Pro, Service Pack 1
- WinCE 5.0.1400
- MS Access, version XP
- MS VBA that is integrated with MS Access version XP
- SQL Server (MSDE), version 2000, SP3

Test Support Hardware

- AutoMARK Voter Assist Terminal (VAT), Firmware version 1.0.168
- Model 100 optical scan precinct ballot counter, Firmware version 5.0.0.0
- Model 650 optical scan central ballot counter, Firmware version 1.2.0.0
- Model 150/550 optical scan central ballot counter, Firmware version 2.1.1.0
- IV-C 1.06a and 1.07a (DOS 5.0 COTS)
- Eagle Version 1.50 APS, Version 1.28 HPS, CPS Version 1.02/C1.04

Documentation

The following is a list of documents that were submitted by AutoMark as their Technical Data Package for this effort:

Doc #	Rev	Document Title	Release Date
SQS-5000-203-R	7	AIMS Requirements Trace Matrix	4/8/05
SQS-5000-204-R	10	AIMS Release Notes	5/09/05
SQS-5002-200-R	10	AIMS System Overview	2/18/05
SQS-5001-201-R	5	AIMS System Functionality	1/17/05
SQS-5000-201-R	5	AIMS System Hardware Specification	2/18/05
SQS-5001-008-R	5	AIMS Compact FMC Specifications	4/7/05
SQS-5001-202-R	13	AIMS Software Design Specifications	5/11/05
SQS-5001-212-R	7	AIMS Programming Specification Details	2/17/05
SQS-5002-201-R	3	AIMS System Security Specification	1/17/05
SQS-5011-200-R	4	AIMS System Operations Procedures	1/17/05
SQS-5001-208-R	21	AIMS Election Officials Guide	4/26/05
SQS-5020-200-R	8	AIMS Configuration Management Plan	4/7/05
SQS-5011-000-R	4	AIMS Quality Assurance Policy & Procedures	2/17/05
SQS-5011-001-R	4	AIMS Quality Assurance Test Procedures	1/17/05
SQS-5011-002-R	6	AIMS Quality Assurance Test Cases	4/8/05
SQS-5001-006-R	5	AutoMARK Software Development Environment	1/21/05
SQS-5001-010-R	3	AutoMARK Rapid Application Development (RAD) Methodology	8/11/04
SQS-4000-000-S	6	AutoMARK Software Standards Specifications	5/3/05
SQS 5061-003-R	20	AutoMARK Jurisdiction Guide	4/26/05
SQS-5061-001-R	9	AutoMARK Voter's Guide	5/2/05
SQS-5061-002-R	19	AutoMARK Poll Worker's Guide	5/11/05
SQS-5000-000-F	4	AutoMARK Personnel Deployment and Training Requirements	1/21/05
SQS-5010-012-F	3	Automark Employee Training Procedure	8/11/04
SQS-2000-004-F	4	Automark Configuration Management Policy	8/11/04
SQS-2011-000-R	7	ATS Software Release Process	2/17/05
SQS-5012-008-S	6	Automark Software Installation Procedure	1/21/05
SQS-2000-001-F	3	Automark Quality Assurance Policy	2/24/05
SQS-2000-007-F	2	Automark Document Control Policy	8/11/04
SQS-5010-010-F	2	Automark Engineering Change Request/Change Order Process	1/17/05
SQS-5010-006-F	2	Automark System Report (Bug Reporting) Procedure	8/11/04
SQS-5010-004-F	3	Automark Document Change & Issue Procedure	8/11/04

3 SYSTEM OVERVIEW

AutoMark submitted the AutoMark Information Management System (AIMS) to Ciber to be qualified under the FEC standards of 2002. The AIMS software provides the user with the ability to either import an election database created in Unity or to define an election based upon a ballot that was created and printed from Unity.

The basic functionality of AIM 1.0.9:

Software

AIMS is a software program designed to run on a COTS PC running Windows XP. It supplies the user with a graphical user interface that allows users to either manually enter ballot data or import the ballot data from files that were created by the ES&S system. Once the data is in the system and verified to be a correct representation of the ballot AIMS is used to write the information to a secure compact flash memory card which is used in the AutoMARK VAT hardware.

Hardware

The AutoMARK Voter Assist Terminal (VAT) is comprised of a touch screen and an integrated printer. The VAT receives the ballot data via a secure compact flash memory card created in the AIMS program. To use the device a voter will insert a preprinted paper ballot that has not been previously voted into the VAT. The screen on the VAT will display a graphical representation of the paper ballot from which the voter will make their selections. Once the voter has navigated to the end of the ballot a summary screen appears allowing the voter to verify their selections. There is a button on the summary screen that allows the voter to accept their choices. Once this button is selected the VAT will mark the ballot using the internal printer. The ballot is then returned to the voter.

4 QUALIFICATION TEST RESULTS

4.1 TECHNICAL DATA PACKAGE (TDP) REVIEW SUMMARY

The TDP contains requirements, design, configuration management, quality assurance, and system operations information. The FEC requirements state that at a minimum, the TDP shall contain the following documentation: system configuration overview; system functionality description; system hardware specifications; software design and specifications; system test and verification specifications; system security specifications; user/system operations procedures; system maintenance procedures; personnel deployment and training requirements; configuration management plan; quality assurance program; and system change notes.

A very complete software TDP was submitted. This included all documentation listed in Section 3. The documents were reviewed for accuracy and completeness as a part of the TDP review process. The documents from the TDP also served as the basis for verifying the Software Test Plan that was used for functional testing.

Upon final review of the aforementioned documents, Ciber concludes that the TDP submitted by AutoMark meets the requirements under the FEC standards of 2002. Appendix A TDP Review provides more detailed information about the reviewed documents.

4.2 SOURCE CODE REVIEW SUMMARY

The source code was reviewed in order to evaluate its compliance with the 2002 FEC standards for source code. These standards are intended to ensure that the overall objectives of the logical correctness, system integrity, reliability, and accuracy are being met. It was also reviewed for its adherence to any AutoMark coding standards.

4.3 FUNCTIONAL TEST SUMMARY

The main goal of functional testing was to verify that the AIMS 1.0.9 software application met the FEC standards. The functional testing performed by Ciber included defining ballot layouts and importing existing database from the ES&S Unity system.

The functional testing included testing against the functional, overall system performance, software, security, communication and data transmission, and audit requirements as specified in the FEC Voting System Standards where applicable.

The functional testing and physical configuration audit were performed on site at ES&S's Omaha office. Ciber performed a witness of the software compile, build, and creation of the installation package. This installation package was then installed at the facility and a

comprehensive test focusing upon the exercise of all functions and options. A system level functional test was conducted that exercised both primary and general elections which included contests, candidates and proposals. Ballots were marked using the VAT and were tallied on the ES&S optical scanners.

After completion of final functional testing, Ciber concludes that AIMS 1.0.9 meets the 2002 functional requirements provided by the FEC as well as the additional requirements stated or derived from the TDP. Appendix C Functional Test Review provides more information on the functional test process and the test results.

4.4 RECOMMENDATION FOR QUALIFICATION

It has been demonstrated through the TDP review, source code review and functional testing that the AutoMark AIMS 1.0.9 when used in conjunction with the ES&S Unity Version 2.4.3 voting system successfully meets the required acceptance criteria of the FEC Voting System Standards.

It is upon completion of this testing that Ciber recommends to the NASED committee that AutoMark AIMS 1.0.9 software be added as a component of the certified ES&S Unity 2.4.3 system.

APPENDIX A

TECHNICAL DATA PACKAGE (TDP) REVIEW

TDP REVIEW - APPROACH AND FINDINGS

The TDP review is an evaluation for compliance with the 2002 FEC standards for TDP completeness and quality. The FEC standards state that vendor documentation relating to voting system hardware shall be submitted with the system as a precondition of qualification testing. These are the items necessary to define the product and its method of operation; to provide vendor technical and test data supporting the vendor's claims of the system's functional capabilities and performance levels; and to document instructions and procedures governing system operation and field maintenance.

In addition to the aforementioned items, documentation and records for configuration management and quality assurance are also required parts of the TDP. Both formal documentation and notes of the AutoMark software development process were reviewed.

The TDP for AIMS 1.0.9 was evaluated and found to meet the FEC 2002 standards. Some anomalies were detected during the review and all were corrected.

APPENDIX B

SOURCE CODE REVIEW

SOURCE CODE REVIEW APPROACH AND FINDINGS

The source code review is an evaluation for compliance with the 2002 FEC standards and AutoMark coding standards.

This report details the results of the AIMS 1.0.9 software evaluation. The evaluation is an assessment of the source code considering the following characteristics:

- Selection of programming languages: High-level programming language shall be used.
- Software integrity: Self-modifying, dynamically loaded, or interpreted code is prohibited.
- Software modularity and programming: Software shall be designed in a modular fashion. Modules shall have a specific function which can be tested and verified independently, shall be uniquely and mnemonically named, shall be small enough to be easily followed and understood, shall have a single entry point, and process flow within the module shall be restricted.
- Control constructs: Software must adhere to acceptable constructs.
- Naming conventions: Names shall be chosen to enhance readability and intelligibility of the program, shall be consistent, and shall be unique within an application.
- Coding conventions: Software shall adhere to basic coding conventions.
- Comment Conventions: All modules must contain headers and provide header comments describing information contained in the header. Descriptive comments shall be provided to identify objects and data types.

Approach

The standards for source code are listing in Volume I Section 4 and Volume II Section 5 of the 2002 FEC Voting System Standards Document, and the AutoMark coding standards.

The assessment consisted of comparing the code to each standard listed in the above Referenced sections of the coding standards documents.

Evaluation

The AIMS software uses a combination of Microsoft Access, Microsoft C++ and Microsoft Visual Basic code to construct a sophisticated set of applications. These languages facilitate and enforce the object oriented design and programming methodology, resulting in a more understandable and maintainable code set than is typically the case with procedural languages.

Findings

The following is the list of components that were reviewed as a part of this qualification. All source code was reviewed to the 2002 standards. All the anomalies found in this review were corrected. The AIMS 1.0.9 software was found to meet the coding standards of the 2002 FEC VSS.

AIMS.MDE

Microsoft Access

AutomarkEncoder.dll

Microsoft C++ 6.00

BmpReader.dll

Microsoft C++ 6.00

ExtractVotingLocation.dll

Microsoft C++ 6.00

PDFRTE.dll

Microsoft Visual Basic 6.0

APPENDIX C

FUNCTIONAL TEST REVIEW

FUNCTIONAL TEST APPROACH AND FINDINGS

This Appendix describes the ballot logic utilized during the functional testing of the AIMS 1.0.9 software application.

#	Test Case	Description
1	G1LOEC24	Imported Database, General Election, Straight Party, Partisan offices, Non-Partisan offices, Write-Ins, Candidate Rotation by Precinct, N of M, Single Precinct offices, No Declared Candidate, Max number of contests 9, Number of Pages 1, Max number of Candidates 16, Number of Parties 16, Number of Precincts 2, Number of Splits 1, Ballot Size 8.5 x 14, Graphic Image in Header
2	P1LOPP24	Imported Database, Open Primary, Party Preference, Partisan offices, Non-Partisan offices, Write-Ins, Max number of contests 16, Number of Pages 2, Max number of Candidates 2, Number of Parties 4, Number of Precincts 1, Number of Splits 1, Ballot Size 8.5 x 14, Graphic Image in Header, Graphic party symbol on Candidate
3	Recall Retain	Imported Database, General Election, Non-Partisan offices, Write-Ins, Recall (YES required), Recall (YES or NO required), Max number of contests 2, Number of Pages 1, Max number of Candidates 3, Number of Parties Non-Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 8.5 x 14, Spanish, Chinese, Korean, Japanese, Vietnamese, Tagalog, Creole
4	ITA General	Imported Database, Partisan offices, Non-Partisan offices, Slate or Group Voting, Write-Ins, N of M, Issue Contest, Single Precinct offices, No Declared Candidate, Max number of contests 7,8, Number of Pages 1, Max number of Candidates 6, Number of Parties 4, Number of Precincts 1, Number of Splits 3, Ballot Size 9.75 x 15
5	ITA Primary	Imported Database, Navigational Race, Partisan offices, Non-Partisan offices, Write-Ins, N of M, Issue Contest, Single Precinct offices, No Declared Candidate, Max number of contests 14, Number of Pages 2, Max number of Candidates 6, Number of Parties 3, Number of Precincts 1, Number of Splits 3, Ballot Size 9.75 x 15
6	ITA General Straight Party	Imported Database, Partisan offices, Slate or Group Voting, Write-Ins, Candidate Rotation by Precinct, Candidate Rotation within Office, Issue Contest, N of M, Max number of contests 8,9, Number of Pages 2, Max number of Candidates 9, Number of Parties 3, Number of Precincts 7, Number of Splits 2, Ballot Size 9.75 x 15
7	ITA Closed Primary	Imported Database, Non-Partisan offices, Max number of contests 6, Number of Pages 1, Max number of Candidates 2, Number of Parties 3, Number of Precincts 1, Number of Splits 1, Ballot Size 9.75 x 15
8	Ballot Size Test 17 Column 41 Rows	Imported Database, General Election, Max number of contests 6, Number of Pages 2, Max number of Candidates 40, Number of Parties Non Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 8.5 x 17

9	Ballot Size Test 17 Column 45 Rows	Imported Database, General Election, Max number of contests 6, Number of Pages 2, Max number of Candidates 44, Number of Parties Non Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 8.5 x 17
10	Ballot Size Test 17 Column 51 Rows	Imported Database, General Election, Max number of contests 6, Number of Pages 2, Max number of Candidates 50, Number of Parties Non Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 8.5 x 19
11	BMW 1 Column	Manual Entry Not Imported, General Election, Max number of contests 5, Number of Pages 2, Max number of Candidates 11, Number of Parties Non Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 3 11/16 x 14
12	BMW 2 Column	Manual Entry Not Imported, General Election, Max number of contests 5, Number of Pages 2, Max number of Candidates 11, Number of Parties Non Partisan, Number of Precincts 1, Number of Splits 1, Ballot Size 6 11/16 x 14

The AutoMark AIMS 1.0.9 software met the functional requirements provided by the 2002 FEC Standards as well as the additional requirements stated or derived from the TDP.

Summary of Report

Original Report 05-27-2005

System	Hardware	Software
Unity 2.4.3	Model 100 optical scan precinct ballot counter, Firmware version 5.0.0.0 Model 650 optical scan central ballot counter, Firmware version 1.2.0.0 Model 150/550 2.1.1.0 IV-C 1.06a and 1.07a (DOS 5.0 COTS) Eagle Version 1.50 APS, Version 1.28 HPS, CPS Version 1.02/C1.04 AutoMARK VAT 1.0.168	AIMS 1.0.9

System Qualification 1990