Election Assistance Commission (EAC)
Interim Accreditation
Independent Test Authorities (ITA)

Assessment Report

CIBER & Wyle

Conducted: Jul 17-22, 2006
Huntsville, AL

Assessor: Steven V. Freeman

Introduction

This accreditation assessment was conducted to support an interim program pending implementation of the full EAC Accreditation program in cooperation with the National Voluntary Laboratory Accreditation Program (NVLAP) under NIST Handbook 150-2006, NVLAP Procedures and General Requirements and NIST Handbook 150-22- 2005 NVLAP Voting System Testing (HB 150-22). The interim program is designed to accredit ITAs formerly authorized under the National Association of State Election Directors (NASED) accreditation program to continue voting system testing under an EAC accreditation until such time as the NVLAP/EAC joint accreditation has qualified one or more testing laboratories as Voting System Test Laboratory (VSTL).

Summary of Findings

Under NASED, Wyle Laboratories and CIBER, Inc. were separately accredited as Hardware and Software ITAs. Under those roles, Wyle tested the principle voting devices—those components that received the votes of the voter and performed the basic tally operation. CIBER tested the Election Management System (EMS) and Reporting System components that performed consolidation of voting results from multiple voting devices on a general purpose computer such as a Commercial Off The Shelf (COTS) workstation or server. Wyle and CIBER have since formed an exclusive team agreement to work with each other as a joint testing cooperative to perform the full voting system certification testing. The source code review of software resident to the voting or vote tallying device which had been Wyle's responsibility has actually been performed by CIBER or source code reviewers working with CIBER in the last year or more.

Wyle has a long identity as a voting system testing lab being the first accredited under the NASED program. Wyle brought to the program a strong background in environmental testing of DOD systems and holds separate accreditation such as the American Association for Laboratory Accreditation (A2LA) for the major hardware test methods required for voting system accreditation. Wyle has a well-defined quality management system in the terms of ISO/IEC 17025 which is generally exercised and used. The corporate culture and higher level management support are compatible with and help support quality management practices.

The CIBER ITA operation is actually a small branch office, *ITA Practice, CIBER, Inc*, operating independently from the corporate CIBER operations. Corporate CIBER's quality management system (which is ISO 9001 compliant) places the responsibility to define and implement the quality program under the ISO/IEC 17025 requirements at the ITA Practice Director's level but places the QA Manager responsible at a branch office (PPQA Group) located remotely from ITA Practice locatoin. ITA Practice's *Process and Project Quality Assurance Plan (PPQAP) [Apr 2005]* policy document and supporting processes and procedures were created last year but critical processes were not implemented nor procedures followed. ITA Practice, CIBER is unable to follow their own defined processes and procedures to ensure the quality of their work.

Although Wyle and CIBER are working together, they have distinctly different quality management programs and different levels of proficiency about following those programs. In the Hardware/Software division, Wyle tests only to the boundaries of the device—they do not, as a rule, perform any operations on the EMS or Reporting system components and limit the interaction with transfer media to the input/output ports of the specific device.. CIBER performs more of the system integration testing by producing variations of election definitions which they either provide to Wyle or operate the voting devices to produce results to use in the Reporting system testing but generally do not exercise a wide function of the voting device, leaving that testing to Wyle. Wyle reports follow ISO/IEC guidelines and tend to be reasonably complete

descriptions of what testing was performed although they don't always indicate where a test was only done in an earlier version. In a number of reports over the last year, Wyle has indicated that CIBER is expected to complete certain tests involving the EMS or Reporting systems. CIBER's reports provide limited or no descriptions of the testing performed so a reader or reviewer can not tell if all the testing was completed. Cross checking between CIBER and Wyle reports has revealed at times that neither ITA has performed certain tests, expecting that the test was done by the other.

Wyle has a demonstrated capability to do well in the limited scope of hardware testing and some related functional testing but does not have the internal resources to perform what is being identified for the new VSTLs as the core requirement testing. With the right partner Wyle could potentially be a full scale test lab but needs to develop the internal resources to be able to take a lead in system integration testing and end-to-end functional testing including more aggressive security testing.

CIBER has not shown the resources to provide a reliable product. The current quality management plan requires more time to spend on managing the process than they appear to have available and it was clear during the assessment visit that they had not accepted that they have a responsibility to provide quality reviewed reports that show what was done in testing. The ITA Practice Director indicated during the assessment that their difficulties were that corporate CIBER did not allow for the personnel resource time for quality management functions but there may be other alternatives for allocating the resources.

In addition, during the review, ITA Practice Director indicated that the testing for a product tends to either use vendor developed tests or new tests developed specifically for the product—they have no standard test methods defined. This makes their testing dependent on the vendor input and vulnerable to unique vendor interpretations rather than a core validated set of internal references for training and testing.

A proposal was made that Wyle take the lead and provide direction on qualify management reviews, audits, test planning, and report writing. CIBER would add software review and election definition experience with possibly some security expertise through corporate CIBER. Wyle, under this proposal, would be fully responsible for the coordination of testing and the final report. CIBER/Wyle would need to work out additional criteria to standardized test plans, determine the who and how review of the TDP would be conducted, and the contract oversight relations.

All the ITAs need to complete a review of the VSS 2002 and new VVSG 2005 and update the requirements cross-reference matrix to be used to identify which requirements have been tested and where or when. The former matrix developed jointly between the ITAs is missing significant requirements and variations on requirements. (Note: Shawn Southworth, ITA Practice Director, reports that CIBER does not have that version of the checklist.)

Recommendation

Wyle to continue as a Hardware ITA, eventually serving as a resource lab for environmental hardware testing for new VSTLs or move to becoming a VSTL by taking responsibility for full system testing with possible subcontracting to CIBER or another qualified group.

CIBER ITA Practice continues only with the support of Wyle or a commitment from corporate CIBER to provide management assistance in getting the quality system functioning and fuller reporting of results with a review in 120 days.

(signed)

Steven V. Freeman

Attachments:

1. CIBER Organization
    a. ITA Organization
    b. Corporate Organization

EAC Technical Supplement Checklist:

Review test lab procedures/standards for the following elements of the VSS 2002 (and equivalent VVSG 2005).

(W) Wyle
(C) Clber
Core voting system tests:

____ 1 Technical Data Package review,

___ a Verify that TDP contains required document content and identify vendor's document meeting requirements.
(C) Initial TDP Review
(W) Test Procedures, Sect 1.

___ b Identification of deliverables: Documents or manuals to be delivered to client for operation, maintenance, and training.
(C) Not identified.
(W) Not identified.

___ c Terms and references. Unique usage
(C) Need to add
(W) Need to add

___ d Review of documents for completeness and consistency
(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 4*
(W) Test Procedures No VSS-2002,

___ e Quality Assurance plan
(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 4 Step 9*
(W) Quality Assurance Test Procedure Need reference identification

___ f Configuration Management
(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 4 Step 9. May need to add attention to identifying EUT for configuration purposes*
(W) Configuration Management Test Procedure. Need reference identification

___ g Review of System release change log
(C) Document No. ITA 2002 QTP R1.0 04-15-0, Sec 4 TDP Step 7, 9
Sec 5 Source Code reviews.
(W) Test Procedures. May need to add.

___ h Review of vendor tests. *Includes but not limited to:*
i Readiness Check
ii Operational Status Check
(C) Document No. ITA 2002 QTP R1.0 04-15-0, Sec 8.1 Test Data and Procedure Preparation. May need to add specifics for validating Readiness Check and Operational Status Check.
(W) Test Procedures 2.0 PreQualification Tests. Verification at the Polling Place Test Procedure (Needs document identification).i May need to add specifics for validating Readiness/Operational Status Check.
Note: Wyle providing validation of the Readiness/Operational Status Check for Ciber.

___ i Review of prior test lab tests
(C) Section 7. Qualification Previously Qualified Software. May need to expand
(W) Need to add
-----Deliverables----

___ j TDP Document Trace matrix directory. Matching the document requirements to the vendor's document names or titles.
(W) Test Procedures, Sec 1

Use the Requirements of the FECVSS 2002 Trace to Vendor Testing and Technical Data Package.

(C) Document No. ITA 2002 QTP R1.0 04-15-0, Sec 4
TDP Inventory (Template)
Initial TDP Review Checklist.doc

___ k Production of formal Test Plan (VSS 2002-Vol II, App A)

(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 8.1 Test Data and Procedure Preparation.*

(W) *Test Procedures, Sec 1 and Appendix A (Volume 1, FEC VSS 2002 Functional Requirements) Note that this does not include Volume II requirements*

QD XI-1, Test Control Program includes development Test Plan.

____ 2 Source code review,

Wyle no longer does source code review. All source code review for Wyle testing is done by Ciber. This constitutes a change in the scope of accreditation for Wyle/Ciber.

___ a Catalog of source code

(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 5. Need to develop and add. Currently produce a master list of all files submitted as part of the source code and provide with some reports. This list includes source code, make files, .dlls and other files which may or may not be reviewed or relevant*

(W) Defer to Ciber for source code review.

___ b Catalog of compilation environment including COTS components of build

(C) Needs to add. Request copy of new procedure for Witnessed Build which is expected to address this.

___ c Determination of changes from prior review

(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 5, Step 4.* Perform a diff comparison on files submitted for a change to verify what has changed and checking with vendor's change log. May need to specify documenting what files (source and installed) are changed.

___ d Review for coding conventions and integrity requirements

(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 5. Step 6 lists the exceptions currently identified from the VSS standards.*

i *Demonstrate*

___ e Review for security

(C) Document No. ITA 2002 QTP R1.0 04-15-0, Sec 5. Only those items currently listed in VSS 2002 and documented in Step 6 are examined. Source code reviewers are expected to report any strange code or process they notice that would be considered a security breach. Current list includes the following with known security implications::

Q: 5.4.2d Unbound area not protected
R: 5.4.2f Case statement with no default area
S: 5.4.2g Possible vote counter overflow Needs attention. This requirement should expect that an overflow condition is prevented or detected and reported for operator action.
FF: 5.4.2v If else operator used more than once. Incorrect. Needs adjustment
HH: 4.2.2 Self modifying, Dynamic Loaded, Interpreted code. Needs development
HH: 4.2.2 Unbound Area, Pointer Values, Dynamic Memory unprotected. Needs development.
Other items under VSS 2002 code review have security implications in terms of features to aid in detection or to prevent hiding unsecure code.
Although not specifically required by VSS 2002, issues such as hardcoded passwords or passphrases or 'backdoors' should be included and provisions specified to client on how such issues will be reported or treated. See topic on reporting anomalies.

i Demonstrate

-----Deliverables-----

___ f Report of results.

(C) *Document No. ITA 2002 QTP R1.0 04-15-0, Sec 5. Note comments about catalogs of file.*

___ g Witnessed build from verified source code and COTS

(C) The procedures in the current document is being superceded by a revision to be provided.

____ 3 Physical configuration audit,

___ a Configuration verification against Configuration Management plan

(C) Performed during final Functional Configuration Test. ????

(W) Test Procedures 4.2. Hardware Configuration. See comment in TDP area issue.

___ b Accessibility standards

(C) Expect hardware ITA

(W) Accessibility Test Procedure , VSS Volume I, Section 2.2.7, Common Standards 2.2.7.1 (svf: physical size and position). Needs to provide specification of table height for item b. See Title 29, CFR, 1910.

Accessibility Test Procedure , VSS Volume I, Section 2.2.7, Common Standards 2.2.7.2 (svf: acoustical and tacile)

___ c Construction

(W) Design, Construction, and Maintenance Characteristics Test Procedure, VSS Volume I, Section 3.4.1, Materials, Processes, and Parts.

Section 3.4.2, Durability. This requirement lacks adequate guidance for test method

Section 3.4.3. Reliability.

Section 3.4.4 Maintainability

Section 3.4.4.1 Physical Attributes supporting maintenance.

Section 3.4.4.2 Additional Attributes.

Section 3.4.5. Availibility. Also, VS Test Procedure 6.9, Need to calculate and report Ai. Under ISO/IEC 17025 procedures this will need to include reporting the basis for the calculation including assumptions made to create proposed values for some of the factors.

Section 3.4.6. Product Marking.

Section 3.4.7. Workmanship.

VS Test Procedure, 6.10 Product Safety under product safety review to ensure compliance with UL 60950-1. This includes review of requirements for features specified under entire section 3.4 in terms of safety concerns excepting possibility Durability. In Design, Construction, and Maintenance Characteristics Test Procedure, need to develop and/or reference test method standard (possibly referencing UL 60950-1)

___ d Validity of operations provided in deliverable manuals

(C) During functional test, need specification of procedure for software operation.

(W) During functional test, need specification of procedure for equipment operation.

___ e Hardware transportation and storage tests.

(C)

(W) Environmental Control – Transit and Storage Test Procedure, VSS Volume I, Section 3.2.2.14. Need to develop reference to Operational Status Test to include validation and repeatability between all the tests. Should reference use of the test for both pre-test and post-test determination of operability.

___ f Hardware operational environmental test.

Note: The system integration tests for accuracy and reliability (e.1. and 2. below) are conducted in conjunction with this test and the final criteria include all components used to consolidate polling place and jurisdiction results from individual voting machines.
(W) Wyle considers a system crash or "abend" as a failure. Resetting the machine is not an acceptable recovery. Check against the VSS 2002 shows the section which specified 'acceptable' errors is not in the final version and Wyle's approach is correct. Need to address the issue of including extended operation of the user interface and not use exclusive automated testing.

___ g EMC and electrical test suit. If test is submitted from a third-party source
- *i Verify test lab is accredited by MRP body*
- *ii Verify equipment under test is for same configuration as being certified*
- *iii Verify that operational status check was appropriate*

(C) Defer to Wyle
(W) VS Test Procedure 6.5 Test Operations Procedures – Electrical
Performance Requirements Test Procedures,
Electrical Power Disturbance
Electromagnetic Radiation, (CFR Part 15, Class B/FCC Part 15 Class B)
Electrostatic Disruption
Electromagnetic Susceptibility
Electrical Fast Transients
Lightning Surge
Conducted RF Immunity
Magnetic Fields Immunity

___ h Safety inspection.
(Covered under construction)

----Deliverables----

___ i Reports for the hardware, EMC and electrical, and Safety tests and inspections. If necessary (i.e. from third party source), provide a statement reporting the results of the verification on the applicability of the reports.
(C) Need to develop. (Tech Guide #3??)
(W) QD V-1. Instructions, Procedures, and Certification Reports
QD VII-1. Supplier Evaluation and Suppliers List. For third-party report.

___ j Directory of deliverables, including hardware and software setup and both application and COTS installed files. (Part of witnessed build documentation)
(C) Need to develop process. Have form and procedures.

____ 4 Functional configuration audit,

___ a Functional Requirement matrix against technical specification and manuals
(C) QTP Sec. 4. TDP Review. Step 8 & 9 (second part of the cross-reference matrix between the VSS designated documents and the vendor identification).
(W) Test Procedures, Sec 1
Use the second part of the Requirements of the FECVSS 2002 Trace to Vendor Testing and Technical Data Package.

___ b Test Specifications for functional requirements
(C) QTP Section 9
Need to develop specific test methods. Ciber has common practices/test case for most of the functional requirements but needs to document for consistency and repeatability.

(W) VS Test Procedures, Sec 4.4.4
Appendix Functional Qualification Checklist
(topic) Test Procedure which specifically reference functional requirement.

___ c Verify functional operation against requirements of Vol I, §2 thru §8 (See Requirements Checklist)
(C) QTP Section 9 Step 10.
Final Report Template.doc, Appendix C. FEC Requirements Relevant to Software Functional Testing. (undated and not currently used)
Update and use
(W) VS Test Procedure Section 1. Uses checklist (Needs to be updated against official version VSS).

___ d Verify functional operation against requirements of vendors technical specification and manuals
(C) QTP Section 9 Step 10. modify checklist (App C) to include vendor specific requirements

(W) VS Test Procedures, Sect 1 and slightly Sect 4.4.4, part of TDP review

___ e Verify HAVA functional requirements.
(C) Primarily covered under Wyle testing. Need to use as part of system integration test.
(W) Casting a Ballot, Vol I, Sec 2.4.3.3
Post-voting functions,
----- Deliverables -----

___ f Provide a Requirement matrix showing which tests performed and requirement satisfied.
(C) Section 9, App C
(W)

___ g Report deficiencies encountered and resolutions of deficiencies.
Note: not all deficiencies will result in a recommendation to not certify.
(C) Sect 9 & 10, App C, comment section Verify against official VSS 2002 and use
(W) QD XV-2. Notice of Anomaly.

____ 5 System integration tests,

___ a Accuracy. For non-COTS systems, includes 48 environmental operating test.
(C) QTP 13 COTS Functional and Volume Hardware Testing. Step 3

___ b ~~Reliability. F~~For non-COTS systems, includes 48 environmental operating test. For COTS
(C) including testing for multi-feed as part of accuracy test. Need to specify/reference

___ c Volume & Stress tests
(C) Need to document. Ciber does perform tests to exercise maximum limits of system but do not have procedure identified or documented.

___ d Security tests.
(C) Need to document

___ e (VVSG 2005) Cryptographic

___ f Telecommunication, as applicable to system design.
(C) Need to document

___ g System end-to-end of EMS, vote recording, vote tabulation, consolidation, and canvass reporting.
(C) QTP Sect 12. Final System Level Testing

----Deliverables-----

___ h Report on tests performed and their results.
(C) QTP Sect 12, Step 7 Prepare anomaly list. May need to include specifics for HAVA provisional balloting, absentee ballot consolidation, and write-in resolution.

___ 6 Qualification Test Report
(C) QTR Template (not uniquely identified/ versioned under document control)
(W) QD V-1 Instructions, Procedures, and Certification Reports

___ a Introduction.
(C) QTR Template Sec 1 (copied supplied is not current.need update).
1.1 Test Agency History and Capability
1.2 Document Overview
(W) Have an electronic copy that is "cut and paste" but not controlled master. This has been a source of error in the past. Need to develop.

___ b Qualification Test Background (B2)
i General Information about the qualification test process. (For outside readers not familiar with the ITA testing).
(C) standard boilerplate text.
(W) standard boilerplate
ii A list and definition of all terms and nomenclature peculiar to the hardware, the software, or the test report.
(W) QD V-1. Sec 4.0 Terms and Definitions.

___ c System Identification (B3). This is the test hardware and software used in this test.
(C) QTR Sec 5.4
(W) QD V-1 Sec 4.9 Test Hardware/Software description Sec 4.
i System name and major subcomponents. Sec 3
ii System Version. Sec 3
iii Test support hardware.
(W) Materials required for testing QTR Sec 5.0 (ISO/IEC 17025 5.10.2 f)
(C) QTR Sec 3. Hardware Support
iv Specific documents (deliverables) from the TDP used to support testing
(W) QTR Sec 5.3.
(C) QTR Sec 3 Documentation provided to support testing. Need to specify which are part of the vendor deliverables.

___ d System Overview (B4). Describes the voting system in terms of
i its overall design structure,
ii technologies used,
iii processing capacity claimed by the vendor and
iv modes of operation.
v (May) include other products that interface with the voting system. *Note: Shall include components necessary to consolidate and produce final results including telecommunications.*
(C) QTR Sec 4
(W) QTR Sec 4

___ e Qualification Test Results (B5). "This section provides a summary of the results of the testing process, and indicates any special considerations that affect the conclusions derived from the test results. This summary includes:
i Acceptability of the system design and construction based on the performance and software source code review.
(C) QTR Sect 5
(W) QTR Sect 6

ii The degree to which the hardware and software meet the vendor's specifications and the standards, and the acceptability of the vendor's technical and user documentation

(C) QTR Sect 5 by subsection

(W) QTR 1.3 Summary

iii General findings on maintainability

(1) Includes notation of specific procedures or activities that are difficult to perform.

(C) Need to add to template in System Overview

(W) Attach A as a note.

iv Identification and description of any deficiencies that remain uncorrected after completion of the qualification test

(1) that has caused or is judged to be capable of causing the loss or corruption of voting data, providing sufficient detail to support a recommendation to reject the system being tested.

(2) deficiency in compliance with the security requirements,

(3) deficiency in compliance with the accuracy requirements,

(4) deficiency in data retention, and

(5) deficiency audit requirements are fully described);

Note: In practice, vendors will not allow reports to be published if it has this level of deficiency.

(C) At end of each Appendice. Need to add to QTR Template/procedure

(W) Located after body of report using a standard Notice of Anomaly (NOA)

v Recommendations to EAC for approval or rejection

(C) QTR 5.4, Includes summary description of the system configuration to be certified

(W) QTR 1.3 (Executive Summary) including system configuration to be certified.

vi Note: Deficiencies that do not result in a loss or corruption of voting data shall not necessarily be a cause for rejection. (Identified as "anomaly")

___ f Appendix Test Operations and Findings (B6)

i Additional details of test results needed to enable understanding of the conclusions. B. b. Organized to reflect the Qualification Test Plan.

ii Summaries of the results of

(1) hardware examinations,

(2) operating and non-operating hardware tests,

(3) software module tests,

(4) software function tests, and

(5) system-level tests (including

(6) security and

(7) telecommunications tests, and

(8) the results of the Physical and

(9) Functional Configuration Audits)

___ g Appendix Test Data Analysis (B7)

i summary records of the test data and

ii the details of the analysis. The analysis includes

(1) a comparison of the vendor's hardware and software specifications to the test data, together with

(2) any mathematical or statistical procedure used for data reduction and processing.

(W) In attachments B through ---, based on relevant standards appropriate for the specific tests.
(C) No known requirements under current scope of operation. Will need to adopt/ensure as part of including specific hardware tests.

1 Purpose and Application.

1.1 Purpose. The following checklist was developed for use in the Election Assistance Commission (EAC) Interim Accreditation for Independent Test Authority Labs (ITAs). This program is an interim program pending implementation of the full EAC Accreditation program in cooperation with the National Voluntary Laboratory Accreditation Program (NVLAP) under NIST Handbook 150-2006, NVLAP Procedures and General Requirements and NIST Handbook 150-22- 2005 NVLAP Voting System Testing (HB 150-22). The interim program is designed to accredit ITAs formerly authorized under the National Association of State Election Directors (NASED) accreditation program to continue voting system testing under an EAC accreditation until such time as the NVLAP/EAC joint accreditation has qualified at least one testing laboratory as Voting System Test Laboratory (VSTL).

1.2 Background. The NASED ITAs were accredited under the NASED Program Handbook 9201, Accreditation of Independent Testing Authorities for Voting System Qualification Testing, (Rev A), 7 Apr 2001. (HB 9201). The HB 9201 was based on Department of Defense standards such as MILSTD-490A and MIL-STD-2167A which had been deleted or superceded by the time of the Rev A release. Rev A was to have been a temporary revision pending the completion of the new voting system standards in 2002 (which was to add a much larger scope of accreditation to include the election management software integration with vote tallying equipment as a voting system.) The Help America Vote Act (HAVA) provisions took the responsibility from NASED and the revision was cancelled pending the development of a new program under EAC and NIST.

1.3 Usage. For the purpose of this accreditation, the management documents provided by the candidate lab were developed under the NASED HBK but will be assessed using ISO/IEC 17025 criteria. As such, it is expected that the documented policy and procedures may not explicitly follow the language and procedures recommended under ISO/IEC 17025 but that the underlying program may support a quality management program that meets the intent of ISO/IEC 17025. On the items below, the assessor will place a

- "X" on substantive discrepancies to be considered in the accreditation decision.
- "C"omments on items where some work is needed to bring the program into compliance with ISO/IEC 17025 but procedures used support the integrity of the testing process.
- "OK" where published procedures and policies are supported by evidence of implementation/

A technical supplement checklist will include Voting System Standards/HAVA requirements for specific review, assessment, or testing.
Note: In general, the Voting System testing is not a calibration activity as intended under ISO/IEC 17025. Calibrated instruments are used in the environmental testing.

(The number in parenthsis is a back reference to page reference to ISO/IEC 17025)

2 Reference Documents
2.1 Normative
2.2 ISO/IEC 17025(2005). *General requirements for the competence of testing and calibration laboratories*, dated 2005-5-15.
2.3 FEC VSS-2002, *General requirements for the competence of testing and calibration laboratories*, dated May 2002 (Note: official version posted on EAC web site and available since 2004)
2.4 FEC VVSG-2005,
2.5 Internal
2.5.1 **Parent organization**
2.5.1.1 CIBER's Custom Solution Division Quality Management Manual (CQMM) (ISO 9001 compliant)
2.5.2 **QA Program for ITA Practices**
2.5.2.1 Process and Project Quality Assurance Plan (PPQAP), Ver 3.0, Apr 30, 2005. Parent document (note: document labeling which says Version 2.0 and Version Release History shows Apr 2004 both are typo errors)

2.5.2.2 Project Quality Assurance Process (PQAP) ITA Practices quality document
2.5.3 **ITA Testing Process**
2.5.3.1 Quality Test Process for Voting System Software (QTP), 4/15/05 Governs testing process

3 Terms and definitions (2)
3.1 Election Assistance Commission (EAC).
3.2 Federal Election Commission (FEC).

4 Management requirements (2)
4.1 Organization (2)
4.1.1 **The laboratory or the organization of which it is part shall be an entity that can be held legally responsible**

Legal Name: __ CIBER, Inc_____ Format *Note: Legal name is all caps for CIBER*

4.1.2 **It is the responsibility of the laboratory to carry out its testing and calibration activities in such a way as to meet the requirements of this International Standard and to satisfy the needs of the customer, the regulatory authorities or organizations providing recognition.**

The EAC shall be identified as the organization providing recognition and as the governing regulatory authority.

Need to make change

Currently, QTP Sec 17. As part of the Test Complaint Procedure.

Sec 1.3.

4.1.3 **The management system shall cover work carried out in the laboratory's permanent facilities, at site away from its permanent facilities, or in associated temporary or mobile facilities.**

CQMM 1. *Indicated that the ITA Practice, CIBER, Inc. shall to define and use their quality program independently but compliant to the parent CIBER's Custom Solution Division's program within the terms of the ISO/IEC 17025 requirements. The actual QA Manager is specified in the QA policies and procedures as ?*

4.1.4 **If the laboratory is part of an organization performing activities other than testing and/or calibration, the responsibilities of key personnel in the organization that have an involvement or influence on the testing and/or calibration activities of the laboratory shall be defined in order to identify potential conflicts of interest.**

NOTE 1 Where a laboratory is part of a larger organization, the organizational arrangements should be such that departments having conflicting interests, such as production, commercial marketing or financing do not adversely influence the laboratory's compliance with the requirements of this International Standard.

NOTE 2 If the laboratory wishes to be recognized as a third-party laboratory, it should be able to demonstrate that it is impartial and that it and its personnel are free from any undue commercial, financial and other pressures which might influence their technical judgment. The third-party testing or calibration laboratory should not engage in any activities that may endanger the trust in its independence of judgment and integrity in relation to its testing or calibration activities.

See organization charts:
Overall CIBER, Inc.

ITA Practice.

QTPVS Para 1, Introduction
PQAP, Sec 3, pg 4

(VS 4.1.1) Employee can not develop and test a product or otherwise consult for a client and then test as ITA the client. Need to develop or confirm from CIBER corporate policy.

4.1.5 **The laboratory shall**

a) have managerial and technical personnel who, irrespective of other responsibilities, have the authority and resources needed to carry out their duties, including the implementation, maintenance and improvement of the management system, and to identify the occurrence of departures from the management system or from the procedures for performing tests and/or calibrations, and to initiate actions to prevent or minimize such departures (see also 5.2);

PQAP, Sec 3, pg 4

b) have arrangements to ensure that its management and personnel are free from any undue internal and external commercial, financial and other pressures and influences that may adversely affect the quality of their work;

Need to add. Billing and contracting are done outside ITA Practices and ITA Practices Director.

c) have policies and procedures to ensure the protection of its customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results;

PQAP, Sec 3 geographically separated office with their own filing network and file system
(VS-4.1.2) Covered.

d) have policies and procedures to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgement or operational integrity;

Certification of Laboratory Conditions and Practices for EAC. 12 Jan 05.
QTP Sec 1

e) define the organization and management structure of the laboratory, its place in any parent organization, and the relationships between quality management, technical operations and support services;

See organization chart

f) specify the responsibility, authority and interrelationships of all personnel who manage, perform or verify work affecting the quality of the tests and/or calibrations;

(See also 5.2)
PQAP, ITA organization and the table of Roles and Responsibilities

g) provide adequate supervision of testing and calibration staff, including trainees, by persons familiar with methods and procedures, purpose of each test and/or calibration, and with the assessment of the test or calibration results;

(See also 5.2)
Need to add. ITA Practices is using processes to make sure personnel are qualified before working independently but do not have a statement of policy to cover supervision while new hires are being qualified or changes of position to a function where not previously qualified.

h) have technical management which has overall responsibility for the technical operations and the provision of the resources needed to ensure the required quality of laboratory operations;

ITA Practice Director. See QTAP, Sec 3. Currently there are only three full time employees so many positions will overlap.

i) appoint a member of staff as quality manager (however named) who, irrespective of other duties and responsibilities, shall have defined responsibility and authority for ensuring that the management system related to quality is implemented and followed at all times; the quality manager shall have direct access to the highest level of management at which decisions are made on laboratory policy or resources;

PQAP, pg 6 & 7 ITA QA Representatives are assigned to advise the ITA Practices Director directly on QA issues. Currently these are T. Dunn and J. Price (independent subcontractors)

j) appoint deputies for key managerial personnel (see Note);

Not documented. Currently Jack Cobb but not reflected in organizational chart.

k) (New) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system.

With three people sitting down at some table.

NOTE Individuals may have more than one function and it may be impractical to appoint deputies for every function.

4.1.6 **(New) Top management shall ensure that appropriate communication processes are established within the laboratory and that communication takes place regarding the effectiveness of the management system.**

Emails and conversations. Small organization.

4.2 Management system (3)

4.2.1 **The laboratory shall establish, implement and maintain a management system appropriate to the scope of its activities. The laboratory shall document its policies, systems, programmes, procedures and instructions to the extent necessary to assure the quality of the test and/or calibration results. The system's documentation shall be communicated to, understood by, available to, and implemented by the appropriate personnel.**

See Documents/Internal for a list of Quality manuals and documents. Basic organization is the QA program plans for the administration of the QA program with a separate set of documents for the QA for the testing activity.

(VS-4.2.1) See Document Control for master copies.

4.2.2 **The laboratory's management system policies related to quality, including a quality policy statement, shall be defined in a quality manual (however named). The overall objectives shall be established, and shall be reviewed during management review. The quality policy statement shall be issued under the authority of top management. It shall include at least the following:**

PPQA, Apr 2005 Sec 1 Purpose, authorized under ITA Practices Director and Director of Federal Systems

PQAP, Sec 1. Purpose

a) the laboratory management's commitment to good professional practice and to the quality of its testing and calibration in servicing its customers;

b) the management's statement of the laboratory's standard of service;

Should consider strengthening this part of statement more explicitly.

c) the purpose of the management system related to quality;

d) a requirement that all personnel concerned with testing and calibration activities within the laboratory familiarize themselves with the quality documentation and implement the policies and procedures in their work; and

Need to add to ITA Practices QA document. All in office are involved in working with the QA procedures. Currently, CIBER corporate requires each employee to receive and sign off on a statement.

e) (New) the laboratory management's commitment to comply with this International Standard and to continually improve the effectiveness of the management system.

Need to add.

4.2.3 (New) Top management shall provide evidence of commitment to the development and implementation of the management system and to continually improving its effectiveness.
Need to add or document from corporate

4.2.4 (New) Top management shall communicate to the organization the importance of meeting customer requirements as well as statutory and regulatory requirements.
Need to add or document from corporate

4.2.5 –a) The quality manual shall include or make reference to the supporting procedures including technical procedures.
PPQAP does identify and reference both PPQA and QTP.

--b) It shall outline the structure of the documentation used in the management system.
PPQAP 1.3

4.2.6 The roles and responsibilities of technical management and the quality manager, including their responsibility for ensuring compliance with this International Standard, shall be defined in the quality manual.
PPQAP 3.1 Explains the roles and separation of QA Representatives to the testing activity.

4.2.7 (New) Top management shall ensure that the integrity of the management system is maintained when changes to the management system are planned and implemented.
Need reference from corporate

(VS-4.2.2- ensuring QA Manual considers topics)
a) internal audits and management review;

PPQA 8.2.3

b) writing and implementing system procedures;

PPQA, 8.2.2.

c) writing and implementing system instructions;

Do not currently have instructions at this level.

d) staff training and individual development plans;

CIBER Policies and Procedures Training Ver 2.3

e) contract review;

Need to develop

f) staff members who work at home and at alternate work sites outside the laboratory (e.g., telecommuting);

Need to specify

g) referencing EAC accreditation and use of the EAC branding.

Modify for reflect EAC rather than NASED. EAC will need to provide further guidance.

(VS-4.2.3) The following program-specific procedures shall be included with the quality manual when it is submitted as part of the application package:

a) review of the vendor Technical Data Package (VSS-2002, Volume II, Section 2). This procedure shall include:

QTP, Sec 4 TDP Review. Need to review and update to include the following.

Use in preparing Qualification/National Certification Test Plan. (Ref VSS Vol II,2.1,See also VI,9.)
Format. Table of content, abstracts, and cross-index against the VSS/VVSG documentation requirements (Ref: VSS Vol II,2.1.1.3)

Provisions for placing the TDP in escrow for reference in state certification and acceptance testing. (Ref: VSS Vol II, 2.1.2)

Note: Completion of the TDP Review includes the validation of user procedures and operation manuals against the actual equipment.

Note: vendor diagnostics and simulations must be validated.

b) selecting the laboratory staff for a Qualification/National Certification test team;

Need to develop.

c) writing a Qualification/National Certification Test Plan for first-time testing and testing of modified systems (Ref VSS-2002, Volume II, Appendix A);
QTP, Sec 8 Qualification Test Plan.
d) writing Test Operation Procedure (Ref VSS-2002, Volume II, Appendix A.6.4);
Need to develop. Currently, CIBER performs the customized tests from knowledge and information from the TDP review but does not have a reference copy that defines the common process used in all test campaigns.

e) conducting testing at a customer's site (if the laboratory offers such services);
NOTE: Reference NASED Tech Guide 3
Need to develop.

f) writing a Qualification/National Certification Test Report (VSS-2002, Volume II, Appendix B);
QTP Sect. 14. Need to review and develop.

g) reviewing the Configuration Management Plan (VSS-2002, Volume II, Section 2.11);
QTP Sec 1.5 Configuration Management During Qualification.

h) ensuring the protection of proprietary information against threat from persons outside the laboratory, from visitors to the laboratory, from laboratory personnel without a need to know, and from other unauthorized persons;
(contained elsewhere in ISO/IEC 17025)

i) cooperating with the EAC during test campaigns;
Need to update.

j) witnessing of system build and installation. (Vol-2002, Volume I, 9.2.6.4, NASED Tech Guide 3)
Have created a draft form and need to complete and validate. Needs acceptance review and possible further expansion based on review.

4.3 Document control (4)

4.3.1 General (4)

Under CIBER corporate polices, approved master copies of the QA policies and manuals are stored under a corporate server Sharepoint subdirectory for the individual divisions. Personnel within the appropriate division and corporate QA management responsibility have access.

For internal to ITA Practices, they have a process but have not documented the process. The samples of documents shown lack identification, version identification and other required features. Need to document and develop futher.

4.3.2 Document approval and issue. (4)

4.3.2.1 a) Have a working process requiring approval by ITA Practices Director. Need to document and develop further.

b) Master List. Using the 'Roadmap' but the 'Roadmap' is limited to product testing documents and does not include QA and others. Need to develop

4.3.2.2 The procedure(s) adopted shall ensure that:

a) authorized editions Need to develop

b) periodically reviewed Need to develop

c) invalid or obsolete removed/assured against intended use Need to develop

d) obsolete documents retained Need to develop

4.3.2.3 Uniquely identified Not being done, need to develop

a) date of issue/revision

b) page numbering

c) the total number of pages or mark for end of document

d) issuing authority

4.3.3 **Document changes (5)**

4.3.3.1 Review and Approval process. Only for the Qualification Test process but not for all controlled documents. PPQA, Sec 7-8.2 for covered documents. Need to be expanded.

4.3.3.2 New or altered text marked or identified. Document and do.

4.3.3.3 a) If permitted to amend by hand, document and authorize

b) clearly marked, initialed and date. *If authorized, document.*

4.3.3.4 Making changes to electronic records.

4.4 Review of requests, tenders and contracts (5)

4.4.1 Procedures for ibid.

QQTP, Sec 3 TDP Review.

QTP, Sec 1.4

Need to develop

a).Requirements known and understood

(VS-4.4.1) Consider HAVA, VSS/VVSG, EAC directives, and,

(VS-4.4.3) if required, specific state requirements and does not circumvent the Federal standards.

(VS-4.4.4) If involved, check that state requirements are current.

b). Capability and resources

c). Have test method or need to develop.

d). Client has to approve

4.4.2 Records of reviews. *Need to develop procedures.*

4.4.3 Review of subcontract work. *Need to develop*

4.4.4 Reporting deviations from contract. Need to develop

4.4.5 Contract amendments. Need to develop.

4.5 Subcontracting of tests and calibrations (6)

4.5.1 *(4.4.3) Needs to be accredited for the scope of test. Needs to develop. Currently comply with existing or in process subcontract.*

4.5.2 *Advise the customer Need to develop procedure Currently complying*

4.5.3 *Responsible for subcontracting work (NASED Guideline #4) Complying NASED Guideline #4. Needs to develop*

4.5.4 *Approved vendor list. Needs to develop and create.*

4.6 Purchasing services and supplies (6) ***Does not apply at this time.***

4.7 Service to the customer (6)

4.7.1 **Cooperation with customer but protect other customers confidentiality**

4.7.2 **(New) Feedback. PQAP, 8.3 and sample survey, including CIBER Policy and Procedure for processing survey (Internal Customer Satisfaction Surveys.**

4.8 Complaints (7)

4.8.1 **Laboratory policy and procedure:** *QTP, Sec 17.* Need to specify that a record needs to be made and kept.

4.8.2 **Make a record.** Have a Test Complaint Process Document

4.9 Control of nonconforming testing ~~and/or calibration work~~ (7)

4.9.1 *Master Services Agreement (CIBER corporate document-standard contract with vendors) provides some specific guidance but ITA Practices may need to provide additional procedures to cover the following:*

a) Responsibility and authority for managing of non-conforming.

b) Evaluation and initial determination

c) Immediate corrective action

d) Where necessary, customer notified and work recalled.

(VS-4.9.1) Where necessary, EAC—especially if for accepted report and certified system.

e) Responsibilty for authorizing resuming of work, if halted.

.

4.9.2 **Where non-conforming work could recur or doubt exists of laboratory compliance with own policies and procedures, corrective action in 4.11 shall be promptly followed.** Need to develop

4.10 Improvement (7)

►The laboratory shall continually improve the effectiveness of its management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

4.11 Corrective action. (8)

4.11.1 **General (8)**

PPQAP, Sec 8.2 Suggestions, Issues and Corrective Action Requests (CARs)

PQAP, requires ITA Practices to create Corrective Action Log. Not created. Need procedures

4.11.2 **Cause analysis (8)**

4.11.3 **Selection and implementation of corrective actions. (8)**

4.11.4 **Monitoring of corrective actions (8)**

4.11.5 **Additional audits (8)**

4.12 Preventive action (8)

4.12.1 *a) Handled as discussions within office. Need to develop procedure and management tracking process.*

b) (New) Action plan for identified preventative action

4.12.2 *Procedures to initiate and application of controls*

4.13 Control of records (9)

4.13.1 **General (9)**

4.13.1.1 QTP, Sec 15 Archive and Qualification Test Artifacts. Observed checkout log and directory

4.13.1.2

--a Storage of files. Not seen were QA records such as audit reports which are stored with corporate QA.

--b Retention times. Implied kept forever. Open question of what retention should be required but this is a conservative choice.

4.13.2 **Technical records (9)**

4.13.2.1 **a)** *QTP, Sec 15 Archive and Qualification Test Artifacts. Observed checkout log and directory.*

b) *Found vendor manuals, sample ballots, test ballots, test voting results, hand written notes, CDs, scripts, weekly status reports and communication with customer. Have not accumulated enough to exceed available, local storage.*

c) Not noticed. Handwritten copies marked but printed copies did not have

4.13.2.2 No test log requirements defined or practices that shows records are complete and identifiable. May need to develop better practice.

4.13.2.3 a) Very little handwritten/ hardcopy notes.

b) TDP reviews, spreadsheet makes new entries but don't lock entries to prevent later changes. Need develop

4.14 Internal audits (9)

4.14.1 **a)** *PQAP 8.2.3 Internal audits are performed by a separate corporate office Process and Product Quality Audit(s) (PPQA Group) with specific training, independence, from observed activity, and direct top management access.*

PPQA, Sec 7.2 PPQA Reviews When: ITA Practice Director requests a project review by the PPQA at least once each calendar year and the event of changes in staff, scope of accreditation, facilities, or equipment.

PQAP, 8.1.2 Plan Quality Assurance Events lists ITA Project Audit (yearly), Quality Assurance Training on staff change, and Accreditation Audit by 'ITA Accreditation Committee

Date of last internal audit: (2005)

This program is actually managed outside of the ITA Practice responsibilities. Copies of the report were not available to the ITA Practice Director. PQAP defines that any recommendations are reported in CARs. However, ITA Director does not have a log and reports there were no previous CARs (procedure was created last year and may not have been in place for last action). May need to request contact with PPQA group. Terry Debell, Manager Internal Audit and Compliance. 303-267-3820.

X Also have project oriented internal audits by the ITA QA Representatives which perform a Process Conformance Audit at the end of each Qualification Test. A report is to be provided to the ITA Director and CARs for any recommendations for deficiencies. There have been no Process Performance Audits. The Representatives were assigned last year.

b) *The CIBER corporate program ensures training of audit personnel. The ITA QA Representatives*

PQAP provides for creation of CARs which the ITA Director must provide for reviews to include monitor the actions from the CARs.

4.14.2 *PQAP 8.2.2 2nd paragraph. The CARs created are to trigger corrective action including involvement of the ITA Practice Director. Need to add notification of customers in writing if investigations show that laboratory results may have been affected.*

4.14.3 *The PQAP CARs procedure would appear to satisfy requirement for recorded.*

4.14.4 *Need to identify procedures for follow up of CARs or, if not defined, develop.*

4.15 Management reviews (10)

4.15.1 *May be in Corporate*

X **Date of most recent management review**: *(the review last year may qualify as a management review)*

- **Actions from previous review** *(CARs)*
- **Reports from third party assessment groups**
- **Customer Audit (feedback) reports**
- **Internal audit reports, including any associated corrective action**
- **Documented problems arising from lack of procedural adherence**
- **Results of proficiency testing and any inter-laboratory comparisons.**
- **Corrective action requests and any preventative actions taken**
- **Details of customer complaints and feedback**
- **Staff training**
- **Current adequacy of staff, equipment, and facility resources**
- **Future plans and projections for new work, staff, equipment, and other requirements.**
- **Summary of annual review and revision activity for all controlled generic**

5 Technical requirements (10)

5.1 General (10)

5.1.1 **(no comment)**

5.1.2

i) human factors. **QTP Sect 3.2.2***Job Description for ITA Practice Director*

Software Analyst

TD Specialist

ITA QA Representatives

Configuration Mgr

Test Engineer

ii) accommodation and environmental QTP, Sec 15.1 Archiving.

PPQAP Sec 3.2.1 Facilities and Equipment

iii) test ... methods and method validation. *QTP Sec 3 through 17*

iv) equipment. Not prepared

v) measurement traceability *N/A except as applies to calibrated equipment*

vi) sampling *N/A except as applies to calibrated equipment*

vii) the handling of test ~~and calibration~~ items. QTP, Sec 3 for TDP, 6 for equipment

5.2 Personnel (11)

5.2.1 **a) Ensuring qualification of personnel.** *CIBER Policies & Procedures Training, Ver 2.2 1/1/06. (on Corporate server) general policy.*

Source Code Review Qualification Test. Consists of spreadsheet with sample code and list of items to find. A partial copy of Vol I 4.2.3, and edited Vol II coding convention standards. Does not include issues about problem such as integrity and security issues. Just used to see if basic competency exists

All other is based on experience performing the tests. No training for security, testing procedures. Corporate training requirements for corporate procedures and quality program. No formal training on voting requirements such as the VSS, state laws variations. Such information is acquired through discussion and vendor designs. May result in problems in critical evaluation of vendor design.

b) Providing supervision during activity where personnel are becoming qualified.

Only one person has been added since creation of office so training has been informal. He observed and participated with experienced technical staff until deemed ready. Need documented policy or procedure

5.2.2 *a) Documented goals in the form of formal Position Description containing requirements for Educational Requirements, Professional Certificates, work related experience and other requirements.*

b) CIBER Training also establishes corporate required training. No supplemental training is defined for the differences required for the ITA Practices under ISO/iEC 17025 based standards (new) or division specific.

c) The training program as it exists based on corporate training is not completely relevant.

d) (new).

(VS-4.5.2) Positions assigned

Laboratory Director: Shawn Southworth, ITA Practices Director

Technical Director: Shawn Southworth, ITA Practices Director

Authorized Representative: Shawn Southworth, ITA Practices Director

Approved Signatory Personnel: Shawn Southworth, ITA Practices Director

Team Leaders: Shawn Southworth, ITA Practices Director

Jack Cobb, ~~Systems~~ Software Analyst,
training record available and reviewed Does not verify J. Cobb is qualified to test.

Comment [SVF1]: Business card says 'System'

Quality Manager: Paul Rainville, Director of Delivery.

prainville@ciber.com

703-610-6400 x 6475

Not listed on Org chart. External to ITA Practices office.

ITA QA Representatives: (defined as local staff/employees with responsibilities to monitor QA requirements, assigned in org chart and PD)

Tom Dunn	**No training records or record of designated as qualification**
Jennifer Price	**No training records or record of designated as qualification**

5.2.3 **Personnel,**

a) employed and/or contracted personnel. All personnel assigned qualify under this requirement

b) CIBER Policy and Procedure. Subcontractor Monitoring, *Feed back from client of manager is collected and a performance assessment is made. Records held at divisional office. No policy/procedure for training or qualifying for competency. Corporate training appears to be irrelevant for them.*

5.2.4 **Job descriptions.** *Available and complete. Individuals identified as assigned to position in QTP Organization Chart in Sect 3. Recommended that the names be removed from the QTP Org Chart and the information be provided in other forms.*

5.2.5 **Authorizations for testing.**

a). Authorize specific personnel to perform specific processes. Informal.

b). Training record reviewed for Jack Cobb. Does not include record of authorization for performing tests. No record exists for subcontracted employees.

(VS-5.2.3). The laboratory shall notify both accreditation agency and the EAC within 30 days of any change in key personnel. When key personnel are added to the staff, the notification of changes shall include a current resume for each new staff member. *This requirement is based on direction given under the initial NASED accreditation and is to be transferred to EAC. Need to develop/update.*

Note 1: 'Key Personnel' is considered here to be the personnel identified in VS-4.5.2 above.

Note 2: 'both accreditation agency' is a residue from NASED as accreditation agency. It has not been confirmed that the future accreditation agency will require this but this was statement is extracted and updated from a draft for that agency. For this accreditation, the accreditation body is EAC.

5.3 Accommodation and environmental conditions (12)

5.3.1 ***a).* Laboratory facilities for testing and/or calibration, including but not limited to energy sources, lighting and environmental conditions, shall be such as to facilitate correct performance of the tests and/or calibrations.** *The office is a basic administrative office with adequate lighting and support. No special needs outside of environmental testing requirement performed by other labs.*

b) **The laboratory shall ensure that the environmental conditions do not invalidate the results or adversely affect the required quality of any measurement.** N/A for base office.

Note: Particular care shall be taken when sampling and tests ~~and/or calibrations~~ are undertaken at sites other than a permanent laboratory facility.

c) The technical requirements for accommodation and environmental conditions that can affect the results of tests and calibrations shall be documented. N/A.

(VS-5.3.1) a) **The laboratory shall have adequate facilities to conduct the voting system testing that it offers. This includes facilities for staff training, record keeping, document storage, and software storage.**

b) If testing activities are conducted at more than one location, all locations shall meet the EAC requirements, and mechanisms shall be in place to ensure secure communication between all locations.

(VS-5.3.2)

(VS-5.3.3)

5.3.2

a) The laboratory shall monitor, control and record environmental conditions as required by the relevant specifications, methods and procedures or where they influence the quality of the results.

b) Tests and calibrations shall be stopped when the environmental conditions jeopardize the results of the tests and/or calibrations.

5.3.3

5.3.4 Access to and use of areas affecting the quality of the tests and/or calibrations shall be controlled. The laboratory shall determine the extent of control based on its particular conditions.

(VS-5.3.6) **If the laboratory is conducting its tests at a customer site or other location outside the laboratory facility, the environment shall conform, as appropriate, to the requirements for a laboratory environment. If a customer's system on which a test is conducted is potentially open to access by unauthorized entities during test, the ITA shall control the test environment. This is to ensure that the systems are in a defined state compliant with the requirements for the test before starting to perform testing work and that the systems ensure that unauthorized entities do not gain access during testing.** *Ref NASED Technical Guideline #4. Draft procedures exit and are awaiting approval.*

5.3.5 *Good housekeeping. Observed reasonable office house-keeping.*

5.4 Test ~~and calibration~~ methods and method validation (12)

5.4.1 **General (12)**

QTP, Sec 1.4 through 10.

a) The laboratory shall use appropriate methods and procedures for all tests and/or calibrations within its scope.

b) The laboratory shall have instructions on the use and operation of all relevant equipment, and on the handling and preparation of items for testing and/or calibration, or both, where the absence of such instructions could jeopardize the results of tests and/or calibrations. Not widely needed at Ciber. May need to look at such an instruction to provide the control of operating system setup as an example.

c) All instructions, standards, manuals and reference data relevant to the work of the laboratory shall be kept up to date and shall be made readily available to personnel (see 4.3).

d) Deviation from test and calibration methods shall occur only if the deviation has been documented, technically justified, authorized, and accepted by the customer.
Need to develop.

5.4.2 **Selection of methods (13)**

Currently limited to broad based QTP for test areas such as TDP Review, Source Code Review, Functional Testing. **Need to develop more specific test procedures that provide a standard base for testing between vendors.**

a) Preferred test methods from international, regional, or national standards. (VS 5.4.1) methods required in VSS/VVSG shall be used.

b) Additional details to supplement standard method.

d) Customer informed and agrees.

e) Shall confirm that it can properly be performed. *(See under review of tenders, etc.)*

(VS-5.4.2) Validation of the test method will be included in documentation.

5.4.3 **Laboratory-developed methods (13)**

a)

5.4.4 **Non-standard methods (13).**

5.4.5 **Validation of methods (14).**

5.4.5.1 Validation definition

Validation is the confirmation by examination and the provision of objective evidence that the particular requirements for a specific intended use are fulfilled.

5.4.5.2 The laboratory shall validate non-standard methods, laboratory-designed/developed methods, standard methods used outside their intended scope, and amplifications and modifications of standard methods to confirm that the methods are fit for the intended use. The validation shall be as extensive as is necessary to meet the needs of the given application or field of application. The laboratory shall record the results obtained, the procedure used for the validation, and a statement as to whether the method is fit for the intended use.
Need to develop

5.4.6 **Estimation of uncertainty of measurement (14) N/A May need to develop in the future.**

5.4.7 **Control of data (15)**

5.4.7.1 Calculation and data transfers.

Calculations and data transfers shall be subject to appropriate checks in a systematic manner.

5.4.7.2

When computers or automated equipment are used for the acquisition, processing, recording, reporting, storage or retrieval of test or calibration data, the laboratory shall ensure that:

a) computer software developed by the user is documented in sufficient detail and is suitably validated as being adequate for use;
Will need to develop for test tools and utilities used for testing provided by a vendor.

b) procedures are established and implemented for protecting the data; such procedures shall include, but not be limited to, integrity and confidentiality of data entry or collection, data storage, data transmission and data processing;
May need to develop.

c). computers and automated equipment are maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of test and calibration data

5.5 Equipment (15). *N/A However, review th ese requirements because they may apply and give guidance for some concerns and issues for working with the vendor supplied equipment refer 5.5.5. May need to apply to actual equipment under test.*

5.6 Measurement traceability (17). *N/A except as applies to calibrated equipment*

5.7 Sampling (19). *N/A. Program currently does not deal with sampling from manufacturing production.*

5.8 Handling of test and ~~calibration~~ items (19).

5.8.1

The laboratory shall have procedures for the transportation, receipt, handling, protection, storage, retention and/or disposal of test and/or calibration items, including all provisions necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer.

5.8.2 **a-d)**

5.8.3 **a-b).**

5.8.4 **a-d)**

5.9 Assuring the quality of test ~~and calibration results~~ (20)

5.9.1

5.9.2 *(New) Quality control data analyzed.*

5.10 Reporting the results (20)

5.10.1 **General (20)**

5.10.2 **Test reports ~~and calibration certificates~~ (20)**

--a) title

--b) name and address of laboratory

(W) QD V-1, Cover page,

if testing elsewhere, Need to add provisions for test location if different than company address in scope

(C) QTR template, cover page,

if testing elsewhere, Need to add provisions for test location if different than company address

-c) unique identification of test report and identification of end of report

(W) QD V-1 job number and use 'page x of y' to identify end of report

(C) Need to develop. Current standard identification is only title and version number on **cover page.**

--d) name and address of customer.

(W) QD V-1 Sect 3 and cover page

(C) QTR template, name is in Sec 3 Need to provide address.

--e) identification of the method used (VS in requirement matrix)

(W) QD V-1 Sect 4.9

(C) Need to develop. Currently do not have e set of test methods/procedures which can be referenced.

--f) description of equipment under test

(W) QD V-1 Sec 4.9, QTR Sec 4.

(C) QTR Sec 3 Test Support Hardware

--g) date of receipt (N/A to voting system)

--h) sampling plan (N/A to voting system)

--i) test results (VSS Vol II, App B5 Test Result Summary), and B6 Appendix of Test Results and Findings)

(C) QTR Sect 5 Qualification Test Results and subdivided TDP, Source Code Review, Functional Test. Where are PCA. Appendices divided into TDP (A), Source Code Review (B), Functional Test (C) including system integration results and should includes security and should include telecommunications. Where is Witnessed Build?

(W) QTR Sect 6.1 Summary and Attachment A (Functional Req, Matrix includes Sect 2-8 of functional requirements) .

Specific Data in Appendices B- (required) for specific tests

--j) names, functions, and signature or person(s) authorizing test report.

(C) "Prepared by" line on QTR cover page. Authority to assign is designated in Project Quality Assurance Process Tailored for ITA Practice. (Page 6 of 16) as Approved Signatory as specified in Position Description

(W) Listed on cover page per QD V-1 and includes:
Prepared

Approved

Quality Assurance Manager

Release (Department Manager)

--k) Statement that the results relate only to the items tested or calibrated.

(W) In QTR Sec 1.3 Summary with standard defined language. Also includes recommendation about restricted reproduction

(C) Need to add.

5.10.3 **Test reports (21)**

5.10.3.1

a) deviations from test methods

(C) Needs to establish reference test method

(W) QTR Sec 6 and QD V-1

b) compliance/non-compliance with requirements (covered under QTR standard App B5 item e)i.

c) N/A except under referenced test standards outside the scope of accreditation

d) (See 5.10.5)

e) additional information required (such as additional tests or information for a requested

5.10.3.2 Sampling (N/A to voting system testing)

5.10.4 **Calibration certificates (22) (N/A)**

5.10.5 **Opinions and interpretations (22)**

(C) Need to develop

(W) If accepting prior results without retesting in QTR Sect 6. May need expand criteria.

5.10.6 **Testing ~~and calibration~~ results obtained from subcontractors (23)**

a) identify test was done by a sub-contractor

(W) QTR Sect 6. and App A. Procedure defined in QD VII-1 Approved Vendor list.

(C) Need to specify

5.10.7 **Electronic transmission of results (23) (refers to Control of Data in electronic media)**

(C) Need to give results

(W) QD VII-1. Document Control (reference 5.4.7)

5.10.8 **Format of reports and certificates (23) (covered by VSS II, App B requirements)**

5.10.9 **Amendments to test reports ~~and calibration certificates~~ (23)**

(W) QD V-1, 5.4. Publish as full revision with changes marked.

(C) QTP Sec 14. Point 2. Needs to review to include requirements of this checklist Section 5.10