NIST HANDBOOK 150-25
2008 Edition

National Voluntary Laboratory Accreditation Program

BIOMETRICS TESTING

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Foreword

The NIST Handbook 150 publication series sets forth the procedures, requirements, and guidance for the accreditation of testing and calibration laboratories by the National Voluntary Laboratory Accreditation Program (NVLAP). The series is comprised of the following publications:

- NIST Handbook 150, *NVLAP Procedures and General Requirements*, which contains the general procedures and requirements under which NVLAP operates as an unbiased third-party accreditation body;

- NIST Handbook 150-xx program-specific handbooks, which supplement NIST Handbook 150 by providing additional requirements, guidance, and interpretive information applicable to specific NVLAP laboratory accreditation programs (LAPs).

The program-specific handbooks are not stand-alone documents, but rather are companion documents to NIST Handbook 150. They tailor the general criteria found in NIST Handbook 150 to the specific tests, calibrations, or types of tests or calibrations covered by a LAP.

NIST Handbook 150-25 presents technical requirements and guidance for the accreditation of laboratories under the National Voluntary Laboratory Accreditation Program (NVLAP) Biometrics Products Testing Laboratory Accreditation Program (LAP). The handbook is intended for information and use by accredited laboratories, assessors conducting on-site visits, laboratories seeking accreditation, laboratory accreditation systems, users of laboratory services, and others needing information on the requirements for accreditation under this program. All statements in this handbook are meant to supplement the Handbook 150 and in no means to contradict it. If ambiguity unintentionally arises, the Handbook 150 requirements **shall** be followed.

The 2008 edition of NIST Handbook 150-25 was developed with the participation of technical experts in the field of biometric testing and was approved by NVLAP. The handbook incorporates the release of the newest editions of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, ISO/IEC 17011, *Conformity assessment—General requirements for accreditation bodies accrediting conformity assessment bodies*, ISO 9001, *Quality management systems—Requirements*, NIST Handbook 150, *NVLAP Procedures and General Requirements*, and scopes of accreditation. The requirements of NIST Handbook 150, the interpretations and specific requirements in NIST Handbook 150-25, and the requirements set forth by the technical standards under the scopes of accreditation **shall** be combined to produce the criteria for accreditation in the NVLAP Biometrics Products Testing Laboratory Accreditation Program.

This handbook is also available on the NVLAP web site (http://www.nist.gov/nvlap).

Questions or comments concerning this handbook should be submitted to NVLAP, National Institute of Standards and Technology, 100 Bureau Drive, Stop 2140, Gaithersburg, MD, 20899-2140; phone: 301-975-4016; fax: 30/1-926-2884; e-mail: nvlap@nist.gov.

Introduction

NIST Handbook 150-25 augments NIST Handbook 150, *NVLAP Procedures and General Requirements* by gathering the technical requirements of the Laboratory Accreditation Program (LAP) for conformance testing to biometrics standards, interoperability testing, technology testing, scenario testing, operational and usability testing of biometric systems and subsystems based upon nationally and internationally recognized biometrics products testing standards. Technical requirements are explained to indicate how the NVLAP criteria are applied for accreditation under the Biometrics LAP.

Any laboratory (including commercial, manufacturer, academic, federal, state, or local government laboratory, foreign or domestic) that performs any of the test methods covered by the biometrics LAP may apply for NVLAP accreditation. Accreditation will be granted to a laboratory that complies with the conditions for accreditation as defined in this document. Accreditation does not imply a guarantee of laboratory performance or of system-under-testing test data; it is a finding of laboratory competence and proficiency in conducting testing.

Testing services covered: Testing services include conformance testing, interoperability testing, technology testing, scenario testing and operational testing based on nationally and internationally recognized biometrics products testing standards to biometric systems and subsystems. See Annex A of this document to view all scopes of accreditation offered and the test procedures and test suites associated with it for the Biometrics LAP.

Types of products covered: The product, generically referred to as the system under tests (SUT) can be a part, a collection of parts, (subsystem), or the whole biometric system that has to be relied upon for enforcing a closely related set of biometric procedures or rules as defined in the specified standard and/or federal policy.

1 General information

1.1 Scope

1.1.1 This handbook specifies the technical requirements and provides guidance for the accreditation of laboratories under the NVLAP Biometrics Products Testing (BPT) Laboratory Accreditation Program (LAP). It supplements the NVLAP procedures and general requirements found in NIST Handbook 150, by tailoring the general criteria found in NIST Handbook 150 to the specific types of tests covered by the BIOMETRICS LAP.

1.1.2 NIST Handbook 150, this handbook, and their respective checklists (see 1.6 and Annex A) constitute the collective body of requirements that must be met by a laboratory seeking NVLAP accreditation for the Biometrics LAP.

1.1.3 Any interpretive comments and additional requirements contained in this handbook make the general NVLAP criteria specifically applicable to the biometrics LAP.

1.1.4 This handbook is intended for information and use by accredited biometrics laboratories, assessors conducting on-site assessments, laboratories seeking accreditation, other laboratory accreditation systems, users of laboratory services, and others needing information on the requirements for accreditation under the Biometrics LAP.

1.2 Organization of handbook

1.2.1 The numbering and titles of the first five clauses of this handbook are patterned after Handbook 150:2006, *NVLAP Procedures and General Requirements*, to allow easy cross-reference. The primary subclauses in clauses 4 and 5 (e.g., 4.1, 4.2, etc.) are also numbered and titled to correspond with those of NIST Handbook 150, even when there are no additional requirements to those in NIST Handbook 150.

1.2.2 In addition, the handbook contains one informative annex (Annex A) that supplements the text. The annex lists the available scopes of accreditation offered by the biometrics LAP, provides additional information and links to the biometrics LAP, NVLAP and NIST websites where most current information and resources can be found, and discusses additional requirements per specific scopes of accreditation in terms of personnel proficiency, managerial and technical requirements, specific tools, quality manual, other documentation and quality systems.

1.2.3 The procedures and general requirements of Handbook 150 and the interpretations and specific requirements in this handbook **shall** be combined to produce the criteria for accreditation under the Biometrics LAP.

1.3 Program description

1.3.1 The U.S. Department of Homeland Security requested establishment of the Biometrics Laboratory Accreditation Program (Biometrics LAP) by the National Voluntary Laboratory Accreditation Program (NVLAP) to accredit laboratories that perform conformance testing, interoperability testing, technology testing, scenario testing, operational and usability testing for biometrics products (systems and subsystems) as defined in nationally and internationally recognized biometrics products testing standards of biometric systems and subsystems. The program currently offers accreditation only in the areas where a need was expressed and the requirements were provided, but it is designed to easily expand and accommodate requirements from any interested governmental agency or private sector. See clause 1.4, References, for a complete list of the currently accepted standards.

1.3.2 Information regarding the most current additions, enhancements and extensions to the Biometrics LAP scopes of accreditation at the time of this publication can be found in the Annex A.

1.3.3 NVLAP reserves the right to expand the Biometrics LAP and offer to interested laboratories additional scopes of accreditation not listed in this handbook. Laboratories are advised to review the Biometrics LAP's website for the most current information (see http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm).

1.3.4 All of the biometric testing performed under any of the Biometrics LAP's programs is handled by third-party test facilities that are accredited as Biometrics Products Testing laboratories by the NVLAP as described in this handbook.

1.3.5 The following diagram provides a generic overview of the accreditation process and the relationship between:

- the Accreditation Authority (NVLAP),
- the applicant laboratory (third-party laboratory), and
- the Qualified Product List (QPL) owner and/or Conformity Assessment Council (CAC) - as customer and technical requirements provider.

For a briefing on the conformity assessment process see the informative diagrams in the Annex A (Figure A.1 and A.2)

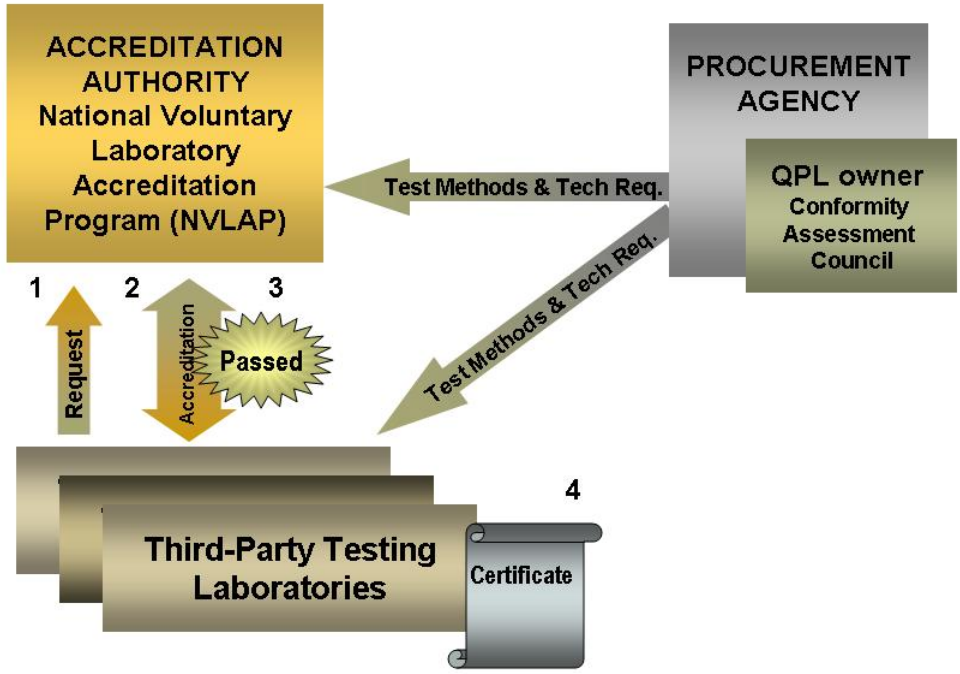


Figure 1: Accreditation process

For a summary on the possible alternatives for the biometrics products conformity assessment process, see the informative diagrams in Annex A, Figure A.1 and A.2.

1.4 References

The following documents are referenced in this handbook. For dated references, only the edition cited **shall** apply. For undated references, the most current edition of the referenced document (including any amendments) **shall** apply within one year of publication or within the time limit specified by regulations or other requirement documents.

1.4.1 NVLAP publications

— NIST Handbook 150, NVLAP Procedures and General Requirements
http://ts.nist.gov/Standards/Accreditation/upload/nist-handbook-150.pdf.

1.4.2 ISO/IEC publications

In addition to the ISO/IEC references listed in NIST Handbook 150, ISO/IEC references specific to particular scopes of accreditation and/or test methods are listed in Annex A. These may be purchased from http://www.iso.org,

— ISO/IEC Guide 43-2, Proficiency testing by inter-laboratory comparisons - Part2: Selection and use of proficiency testing schemes by laboratory accreditation bodies, 1997.

1.4.3 Other publications (SP)

— Registry of USG Recommended Biometric Standards, version 1.0, June 2008 or successors, http://www.biometrics.gov/standards.

See Annex A for additional scope-specific references and, if applicable, a descriptions of Biometrics Products Testing tools relevant to the desired scope of accreditation.

1.5 Terms and definitions

For the purposes of this handbook, the relevant terms and definitions given in NIST Handbook 150 apply unless a term is redefined in this handbook. The definitions provided in this handbook are specific to the Biometrics LAP, and when applicable, they supersede the definitions given in the NIST Handbook 150. For a list of all acronyms, see Annex A. Terms specific to the Biometrics LAP are defined as follows:

1.5.1

Additional scope-specific terms and definitions are provided in Annex A, subclause A.2

1.5.2

acceptance (of a biometrics products)
The administrative act by the Procurement Agency of adopting biometrics products for its needs, based upon the vendor's self-declaration of conformity to specified standards and requirements.

1.5.3

algorithm
A limited set of well-defined instructions to solve a task, which leads reliably from a given starting point to a corresponding identifiable end point. In biometric systems, specific algorithms are used, for example, to indicate how a smart card determines whether the input fingerprint matches the template stored on the card or in the database.

1.5.4

assessment
The administrative act by the QPL owner and/or Conformity Assessment Council of determining conformance of a biometrics product to specified standards and requirements based, at minimum, on test results prepared by the accredited laboratories and submitted by the vendor.

1.5.5

authentication
The process of establishing confidence in the truth of some claim. The claim could be any declarative statement for example: "This individual name is 'Joseph K.'" or "This child is more than 5 feet tall." In biometrics, "authentication" is sometimes used as a generic synonym for verification. *See also verification.*

1.5.6

biometrics
A general term used alternatively to describe a characteristic or a process.

As a characteristic:

A measurable biological (anatomical or physiological) and behavioral characteristic that can used for automated recognition

As a process:

Automated methods of recognizing an individual based on measurable biological (anatomical or physiological) and behavioral characteristics.

1.5.7

biometric template
A digital representation of an individual's distinct characteristics, representing information extracted from a biometric sample. Templates are used during biometric authentication as the basis for comparison.

1.5.8

conformance
The state of an implementation satisfying the requirements and specifications of a specific standard as tested by a test suite or some approved test method.

1.5.9

conformance testing
The testing of an implementation against the requirements specified in one or more standards.

1.5.10

conformity assessment
An activity to determine that a biometrics process, product or service meets referenced standards or derived test requirements and fulfills recommended technical requirements. The conformity assessment process could imply an acceptance of the biometrics products based upon vendor's declaration of conformity (see 1.5.2), an assessments process which requires conformance test reports revision (see 1.5.24), or a combination of both acceptance and assessment processes.

1.5.11

Conformity Assessment Council
A group of technical experts in biometrics systems and subsystems, whose members are equal in power and authority, and whose responsibility is to review the conformity assessment technical requirements and to advise the Qualified Product List owner on the accuracy and correctness of the biometrics products test reports submitted by vendors with their request to have the product listed on the agency's QPL.

1.5.12

Derived Test Requirements (DTR)
Description of the methods that will be used by accredited laboratories to test whether the SUT conforms to the requirements of the specified standards and the requirements for vendor information that must be provided as supplementary evidence to demonstrate conformance to the program specific standard requirements.

1.5.13

Implementation Guidance (IG)
A set of documents published during the lifetime of the standard which provides additional clarification, testing guidance and interpretations of the standard. (Implementation guidance cannot change or add requirements to the standard.)

1.5.14

key personnel

The members of the staff who can perform a particular conformance testing task and who can not be replaced by any other laboratory staff member due to their lack of experience, knowledge, or credentials.

1.5.15

Personally Identifiable Information (PII)
Any personal information about an individual, maintained by an agency, including, but not limited to an individual's name; social security number; date of birth; mother's maiden name; biometric records; education; financial transactions; medical history; criminal or employment history; and information which can be used to distinguish or trace an individual's identity. PII can also include address, phone number and email address or any combination of indirect data elements such as gender, race, geographic indicator (e.g., zip code) which taken in association can identify individuals.

1.5.16

Procurement Agency
An executive agency responsible for the acquisition of products and services. This document implicitly refers to procurement agency for biometrics products.

1.5.17

Qualified Product List (QPL)
A list of products, qualified under the requirements stated in the applicable specification, including appropriate product identification and test reference with the name and address of the manufacturer or distributor, as applicable. This document only references qualified biometrics products lists.

1.5.18

security
The assurance that a system will maintain an acceptable level of information confidentiality, integrity and availability.

1.5.19

security requirements
Functionality and design controls which, when implemented in a system, facilitate information assurance.

1.5.20

System-Under-Test (SUT)
The entity - the product, device, system, sub-system, template, etc. - that is the subject of the conformance testing.

1.5.21

self-declaration of conformity
Suppliers declaration, based upon in-house or third-party testing, that the product under assessment complies to all referenced standards and additional mandated technical requirements.

1.5.22

test method
The definitive procedure that produces a test result. The test result can be generated by one test or by a test suite and can be qualitative (yes/no), categorical, or quantitative (a measured value). The test result can be a personal observation or the output of a test tool.

1.5.23

traceability
Interpreted in the Biometrics LAP to mean that the conformance testing tool is traceable back to the underlying requirements of the provided normative standards.

1.5.24

validation
The administrative act by the QPL owner and/or Conformity Assessment Council of determining the accuracy, standard and/or DTR compliance of the testing tools and/or testing harnesses used by the accredited laboratory for the biometrics product testing. When applicable, the validation of a test tool implies the verification, as far as possible, that the test tool behaves properly and produces results that are consistent with the specifications, with any relevant standards and, if applicable, with a previously validated version of the test tool.

1.6 Program documentation

1.6.1 General

This handbook details the biometrics-program-specific requirements and technical procedures, while it interprets, details, and expands portions of Handbook 150 for Biometric LAP use. Assessors use NVLAP checklists to ensure that each laboratory receives an assessment comparable to that received by others. Checklists assist assessors in documenting the assessment to the NVLAP requirements found in NIST Handbook 150, in this handbook, and in the checklists themselves. Checklists contain definitive statements or questions about all aspects of the NVLAP criteria for accreditation, and form part of the On-Site Assessment Report (see NIST Handbook 150). The most current version of each checklist is available upon request or on the NVLAP web site http://www.nist.gov/nvlap.

1.6.2 NIST Handbook 150 Checklist

All NVLAP programs use the NIST Handbook 150 Checklist (formerly called the *General Operations Checklist*), which contains the requirements published in NIST Handbook 150. The checklist items are numbered to correspond to clauses 4 and 5 and annexes A and B of NIST Handbook 150.

1.6.3 NIST Handbook 150-25 Checklist

1.6.3.1 The NIST Handbook 150-25 Checklist (also referred to as the Biometrics Program-Specific Checklist) addresses the requirements specific to biometrics products testing given in NIST Handbook 150-25. The checklist contains guidance expressed at a more detailed level than found in this handbook. The checklist contains the requirements provided in this handbook, including testing requirements and additional details and notes for the assessors (e.g. the names of the key personnel) when necessary, with an emphasis on observing and performing tests, testing accuracy, instrumentation, calibration, personnel competency, and test reporting. The current version of the checklist is available from the Biometrics LAP web site at <http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm>.

1.6.3.2 The Biometrics Program-Specific Checklist applies only to biometrics systems and products testing. The checklist focuses on the testing requirements and the special personnel and equipment requirements corresponding to the scopes of accreditations elected by the applicant laboratory. Annex A provides additional information on the scopes of accreditation and derived requirements.

1.6.3.3 The Biometrics Program-Specific Checklist also includes a place to record the assessor's observations of test demonstrations when performed and/or proficiency testing results when applicable. This checklist may be revised when appropriate to reflect changes in the technical requirements, scope(s), and/or technology of the program.

1.6.3.4 The checklist concludes with a Comments and Deficiencies section used by the assessor(s) to explicitly identify and describe all deficiencies noted in the body of the checklist. Additionally, the assessor(s) may use the form to document comments on any aspect of the laboratory or its performance.

1.6.4 Scopes of Accreditation and Test Method Selection

1.6.4.1 The Biometrics LAP offers a set of scopes for accreditation. Depending on the breadth of its testing capabilities, the applicant laboratory may select its scope(s) of accreditation from the list of offered scopes. The minimum required scope of accreditation is the Biometrics Products Testing and

Analysis (30/BTA) scope, as defined in the Annex A and on the Biometrics LAP website. Some of the scopes have additional scopes as pre-requisites. For example, the Technical Interface Standards Conformance Testing (30/TISCT) scope requires the Conformance Testing (30/CT) and the Biometrics Testing and Analysis (30/BTA) scopes as pre-requisites. In this example, neither 30/BTA nor the 30/CT scopes of accreditation are stand-alone scopes, therefore there are no separate test methods associated with them.

1.6.4.2 Each scope of accreditation has at least one test method associated with it. A Test Method Selection List, is provided to a laboratory seeking accreditation as part of the NVLAP application package for the program.

1.6.5 Test Method Review Summary

Because of the large number of relevant standards and test methods in the Biometrics LAP, when provided, the assessor(s) must use(s) the *Test Method Review Summary* sheets, along with applicable checklists, to review the laboratory's ability to perform the biometrics test methods associated with the scope(s) of accreditation the laboratory is applying for. The review of the test methods by the assessor ranges from observing tests while performed to having laboratory's staff describe the test procedures. The assessor notes on the *Test Method Review Summary* the depth into which each part of the test method was reviewed (e.g. Observed Test, Examined Apparatus, Walked/Talked Through Test, Listened to Description of Procedures).

1.6.6 NVLAP Lab Bulletins

NVLAP Lab Bulletins are issued to laboratories and assessor(s), when needed, to clarify program-specific requirements and to provide information about the most current program additions and changes.

1.6.7 Other Publications

Some of the scopes of accreditation and associated test methods reference additional documentation that can be found in Annex A and/or on the Biometrics LAP website. The scopes of accreditation are available on the NVLAP website at <http://ts.nist.gov/Standards/Accreditation/handbook.cfm>

2 LAP establishment, development and implementation

2.1 Bases for establishment

This subclause contains no information additional to that provided in NIST Handbook 150, 2.1.

2.2 Development of technical requirements

All technical requirements mandated for a laboratory under accreditation tailor the requirements discussed in Clauses 4 and 5 which are derived from the elected scope of accreditation and associated test methods for which a candidate requests accreditation.

2.3 Announcing the establishment of a LAP

This subclause contains no information additional to that provided in NIST Handbook 150, 2.3.

2.4 Adding to or modifying a LAP

Upon identifying the need for additional biometrics products tests or test types, NVLAP reserves the right to add or modify the BIOMETRICS LAP either by adding new subsidiary programs or new test methods to existing programs, or modifying the existing test methods. All changes will be published in a timely manner in a NVLAP Lab Bulletin and will be reflected on the website: <http://www.nist.gov/nvlap>.

2.5 Termination of a LAP

This subclause contains no information additional to that provided in NIST Handbook 150, 2.5.

3 Accreditation Process

3.1 Application for initial accreditation

3.1.1 A laboratory interested in accreditation for any of the scopes of accreditations offered under the Biometrics LAP **shall** familiarize itself with all the requirements listed in Handbook 150 and in this handbook, review the Biometrics LAP website at <http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm> or contact NVLAP for the most current updates on the requirements and application process.

3.1.2 An overview of the laboratory accreditation process is provided in NIST Handbook 150, clause 3, and includes information pertaining to application for accreditation; on-site assessment; proficiency testing; accreditation decision; granting accreditation; renewal of accreditation; changes to scope of accreditation; monitoring visits; and suspension, denial, revocation, and voluntary termination of accreditation.

3.1.3 Prior to applying to NVLAP for accreditation, a laboratory **shall** have a fully implemented management system. A copy of the latest quality manual and relevant associated documents **shall** be sent to NVLAP with the application forms.

3.1.4 The assessment process consists of a NVLAP review of the application and laboratory management system documentation and an on-site assessment visit.

3.1.5 For an initial accreditation, NVLAP management may consider a pre-assessment on-site visit to better define the laboratory's requested scope of accreditation. In such cases, the pre-assessment costs will be charged to the laboratory in addition to the On-Site Assessment Fee.

3.1.6 The accreditation process starts with the submission of the laboratory's application, fees payment, continues with the on-site visit and laboratory's proficiency evaluation which includes the a) through d) steps represented below, and ends with NVLAP's final decision regarding the laboratory's accreditation.

see 3.1.6-a. and 3.2.2.

see 3.1.6-b., 3.3 and 3.4.

see 3.1.6-c., 3.3 and 3.4.

see 3.1.6-d,, 3.3 and 3.4.

Figure 2: Accreditation flow chart

a) Quality manual evaluation - When the laboratory is applying for initial accreditation, the assessor(s) must first determine that the management system meets the requirements.

b) Proficiency written exam - If the assessor(s) determine that the management system meets the requirements, a written exam is then provided to the applicant laboratory, with a 5-business-day deadline for response, unless otherwise specified. This exam evaluates the laboratory personnel's technical expertise and knowledge of the standards and test methods applicable to the scope(s) of accreditation for which the laboratory is applying. The laboratory **shall** score greater than 75 % correct responses for the accreditation process to continue and the on-site visit to be scheduled.

c) On-site visit and proficiency/round-table quiz - Once the written exam is passed, an on-site visit is scheduled at a mutually agreed date and time. During the on-site visit, the laboratory's personnel will be quizzed and team dynamics observed for proficiency and expertise in the technical area for which the laboratory is applying for accreditation. Staff member interaction and knowledge distribution among team members are key factors that will be monitored by the assessor(s). The laboratory staff **shall** provide greater than 75 % correct responses for the accreditation process to continue.

d) Proficiency artifact and/or operational exam - Once the assessor(s) determines that the laboratory has satisfactorily completed the on-site visit, a proficiency artifact and/or operational exam is provided to the applicant laboratory (at the end of the initial on-site visit or after on-site visit). Unless otherwise specified by NVLAP, the laboratory **shall** complete the test by the scope-dependent deadline. The proficiency artifact and/or operational exam is designed to evaluate the laboratory's understanding of and competence to apply the Biometrics Products

Testing conformance testing methodology specific to the scope(s) of accreditation for which the laboratory is applying. The laboratory **shall** successfully complete the proficiency test as evaluated by the technical expert assessor(s) in order to be accredited by NVLAP. The proficiency artifact and/or operational exam requirement applies only to initial accreditation.

3.2 Activities prior to initial on-site assessment

3.2.1 Prior to the on-site assessment, the assigned assessor(s) will review all relevant management system documentation for conformity with NVLAP requirements, including the requirements of this handbook and NIST Handbook 150. During this review, the assessor may request additional management system documents and/or records, which will be returned upon request. Because of the very large number of relevant standards in the Biometrics LAP, relevant test method(s), operator instructions and/or test procedures may be requested by the assessor for review in advance of the on-site assessment. The laboratory **shall** provide requested test method(s), operator instructions and/or test procedures to the assessor.

3.2.2 The quality manual and related documentation **shall** contain or refer to documentation that describes and details the implementation of procedures covering all of the technical requirements in this handbook. This information will be reviewed by NVLAP assessors prior to the on-site assessments. Satisfactory quality of the manual is a condition for the on-site visit. Defects and recommendations for quality manual enhancements will be discussed during the on-site visit.

3.3 On-site assessments

3.3.1 Conduct of on-site assessment

3.3.1.1 It is important to note that the laboratory cannot be granted accreditation unless:

- the laboratory has completed and passed the written exam [3.1.6-b] (normally conducted before the initial on-site assessment);
- the laboratory passed the proficiency quiz [3.1.6-c] (normally conducted during the on-site assessment);
- the laboratory has completed and passed the proficiency artifact test and/or operational exam [3.1.6-d] (normally conducted after the initial on-site assessment);
- the laboratory staff has demonstrated understanding of and competence to apply the Biometrics Products Testing conformance testing methodology as evaluated by the results of the proficiency test; and
- the laboratory has exercised the management system and has produced appropriate records of all management system activities.

3.3.1.2 The on-site assessment is scheduled at a mutually agreed date between NVLAP's assessors and the laboratory. The on-site assessment will most likely span about 2 days and will most likely be performed by two or more NVLAP assessors. All observations made by the assessors during the assessment are held in the strictest confidence.

3.3.1.3 In some cases, the on-site assessment may involve the laboratory site and a separate test site for the proficiency testing. If the separate test site for the proficiency demonstration is within a short commuting distance from the main laboratory site, the demonstration will have to be scheduled at a date and time mutually agreed between assessor(s) and laboratory management but still part of the approximately 2 day on-site visit. If the geographic distance to the separate test site requires significant travel, then this is deemed by NVLAP to be a separate laboratory that will have to be separately accredited with its own separate on-site assessment, etc.

3.3.1.4 The assessors will use, in addition to the general checklist based on Handbook 150, the Biometrics Program-Specific Checklist derived from the technical specifics contained in this handbook and the Test Method Review Summary sheet. Even though the Biometrics checklist is derived dynamically from the elected scopes of accreditation and corresponding test methods, the derivation is done such that the composed checklist ensures that the assessment is complete and that each assessor covers the same items at laboratories with equivalent chosen scopes of accreditation.

3.3.1.5 Additionally, the assigned assessor(s) have the right and the responsibility to go beyond the checklist whenever need rises (e.g., new updated requirement are available on the Biometrics LAP's website but are not incorporated yet in the checklist), in order to delve more deeply into technical issues.

NOTE NVLAP will document all technical requirements prior to assessments.

3.3.1.6 The agenda for a typical on-site assessment is given below:

a) *Opening meeting:* During the on-site visit, the assessor(s) conduct(s) an entry briefing with laboratory management and supervisory personnel to explain the purpose of the on-site and to discuss the schedule for the assessment activities. Information provided by the laboratory on the accreditation application form may be discussed during this meeting. At the discretion of the laboratory manager, other staff may attend this meeting.

b) *Staff interviews, discussions, proficiency quizzes:* The assessor will ask the laboratory manager to assist in arranging times for individual interviews with laboratory staff members and/or proficiency/round-table quizzes of staff. While it is not necessary for the assessor to talk to all staff members if individual interviews are requested, he/she may select staff members representing all different aspects of the laboratory. If proficiency/round-table quizzes are to be conducted, all members of the relevant staff should be scheduled to be present and participate.

c) *Records review:* During the on-site visit, the assessor(s) will also review the laboratory's

documentation, including:

- conformance of the quality system with ISO 17025-2005 and NIST Handbook 150,
- quality manual,
- equipment and maintenance records;
- record-keeping procedures,
- testing procedures,
- laboratory test reports,
- personnel competency records,
- personnel training plans and records,
- version of the testing tools and/or other conformity assessment specific software, when provided;
- procedures for updating pertinent information (e.g., Implementation Guidance and the qualified products list), and
- safeguards for the protection of confidential, vendor-sensitive and proprietary information.

One (or more) laboratory staff member(s) **shall** be available to answer questions; however, the assessor may wish to review the documents alone. Under some circumstances, the assessor may remove some documents from the laboratory during the assessment. Specifically, the assessor may remove for review documents related to the quality system, such as a revised quality manual, proficiency test data, or new procedures. The material will be returned or destroyed at the laboratory's direction.

The assessor will check personnel information for job descriptions, resumes, training records and technical performance reviews. The assessor **shall** not be given information which violates individual privacy such as salary, medical information, or performance reviews outside the scope of the laboratory's accreditation. At the discretion of the laboratory, a member of its human resources department (or equivalent) may be present during the review of personnel information.

d) *Internal audit and management review*: The assessor(s) will review and discuss the laboratory's internal audit and management review activities with the laboratory staff. The discussion will include all aspects of those activities including the management system procedures, the audit findings, the results of the management review, and the actions taken to resolve problems identified.

e) *Equipment*: The assessor will examine computer hardware, software, auxiliary test equipment, and facilities for appropriateness, capability, adherence to specifications, etc.

f) *Laboratory walk-through:* The assessor(s) will inspect the laboratory in the following areas during a walk-through:

- physical layout of the laboratory including entrance and exit points;
- all test equipment and tools, including computer hardware, servers used for records retention and physical storage area;
- work environment in regard to providing adequate testing work space, heating, lighting, etc.; and
- physical security including access control procedures and records.

g) *Proficiency evaluations:* Although the written examination is provided prior to the initial

on-site assessment; the group round-table quizzes and individual demonstrations conducted during the initial and renewal on-site assessments are considered part of the *proficiency evaluations*, when necessary, there may be additional *proficiency artifact and/or operational exams* required as part of the initial assessment. Unless otherwise instructed prior to the on-site visit, the proficiency artifact and/or operational exam described in 3.1.2 and which completes the initial *proficiency evaluations* will be either provided at the end of the on-site visit or will be sent to the laboratory after the on-site visit. NVLAP reserves the right to modify this rule, when appropriate, on a case-by-case basis.

h) *Closing meeting*: At the end of the on-site visit, a closing meeting is held with the laboratory manager and staff to discuss the assessor's findings. See 3.3.3.6 and 3.3.3.7 of NIST Handbook 150 for more information regarding the assessment report, nonconformities and the final resolution.

3.3.2 On-site assessment report (OSAR)

The assessor completes an *On-Site Assessment Report* (OSAR) which summarizes the findings. Copies of the completed checklists are also attached to the OSAR at the exit briefing. The report is signed by the assessor and the laboratory's Authorized Representative. A copy of the report and of the checklists is given to the laboratory representative for retention. The decision to grant or renew accreditation is not made by the assessor team but by NVLAP in accordance with the procedures described in Handbook 150.

3.3.3 Nonconformities, comments, and recommendations

3.3.3.1 Nonconformities that have been corrected during the on-site assessment and any recommendations will be specifically noted on the OSAR.

3.3.3.2 Comments in the OSAR should be given serious consideration by the laboratory, but no action is mandated and changes are made at the laboratory's discretion. However, assessor(s) frequently note that comments often rise to the level of nonconformities on subsequent assessments.

3.3.3.3 Positive feedback will also be recorded on the OSAR.

3.4 Proficiency Testing

3.4.1 General

3.4.1.1 In addition to the proficiency testing methodology described in the NIST Handbook 150 for initial and renewal accreditation, Biometrics LAP mandates program-specific proficiency testing. All applicant laboratories are required to participate in proficiency testing for all test methods derived from their scope(s) of accreditation, as designated in the Annex A.

3.4.1.2 To properly evaluate a laboratory, the proficiency testing consists of several parts. The proficiency test concept is designed to allow the evaluation of the laboratory's ability to produce repeatable and reproducible test data.

3.4.1.3 The proficiency testing ranges from observing tests while performed to having laboratory's staff describe the test procedures. The assessor notes on the Test Method Review Summary the depth into which each part of the test method was reviewed (e.g., Observed Test, Examined Apparatus, Walked/Talked Through Test, Listened to Description of Procedures). See Annex A for more details regarding the proficiency testing for each scope of accreditation.

3.4.2 Types of proficiency testing

NVLAP follows ISO/IEC Guide 43-2 for all of the types of proficiency testing used within the Biometrics LAP, therefore, the LAP's proficiency testing may consist of one or more of the following exercises:

a) Demonstration of the *understanding and correct interpretation* of all data transformation and of all test results reported by the test tools.

b) Demonstration of the *reports generation* in the approved format and with the content identical to the results produced by the tests.

c) Demonstration of a solid background, theoretical knowledge and technical expertise in the area of the elected scope(s) of accreditation.

d) Demonstration of System-Under-Test (SUT) conformance testing proficiency. Unless otherwise instructed, the laboratory will perform a test of a specifically designed artifact, referred to as SUT, with one or more features that is/are not in conformance with the standard. The laboratory **shall** discover the nonconformities, document them, and indicate which standard's requirements have failed due to the presence of the nonconformities.

e) Demonstration of SUT conformance testing proficiency. The laboratory **shall** perform a *conformance test* of a specially designed artifact, referred to as SUT, with one or more features that is/are not in conformance with the standard. The laboratory **shall** discover the nonconformities, document them, and indicate which standard's requirements have failed due to

the presence of the nonconformities.

Unless otherwise specified by NVLAP, the *proficiency artifact and/or operational exam* for the initial accreditation will be delivered to the laboratory at the end of the on-site assessment or later.

f) NVLAP, in collaboration with the biometrics Conformity Assessment Council, when applicable, consider the test reports submitted to the vendors as on-going proficiency tests. A large number of flaws in the reports provided to any vendor and submitted to CAC, when applicable, can trigger the laboratory's suspension or revocation of the accreditation.

3.4.3 Analysis and reporting

The results of the proficiency testing are presented by the assessor(s) to NVLAP as soon as the testing process is completed. The results are then reported in appropriate documents to the candidate laboratory within 30/ days from the completion of the testing process.

3.4.4 Proficiency testing nonconformities

Problems indicated by proficiency testing will be discussed with appropriate laboratory personnel responsible for developing and implementing plans for resolving the problems. Deficiencies identified by proficiency testing during an on-site assessment, a scheduled proficiency testing, or submission of incomplete or inaccurate test reports **shall** be resolved by the laboratory in order to attain or maintain accreditation.

3.5 Accreditation decision

This subclause contains no information additional to that provided in NIST Handbook 150, 3.5.

3.6 Granting accreditation

This subclause contains no information additional to that provided in NIST Handbook 150, 3.6.

3.7 Renewal of accreditation

It is important to note that the laboratory cannot be granted the renewal of the accreditation unless the laboratory has effectively implemented the management system and has produced appropriate records of all management system activities, including conducting at least one internal audit and management review before initial accreditation.

3.8 Monitoring visits

This subclause contains no information additional to that provided in NIST Handbook 150, 3.8.

3.9 Changes to scope of accreditation

3.9.1 A laboratory can request at any time a change in its scope of accreditation. A laboratory that requests additions to its scope of accreditation might be required to successfully complete additional proficiency tests.

3.9.2 In some instances when the laboratory's request is to increase the original scope, NVLAP may require an on-site assessment.

3.10 Suspension of accreditation

3.10.1 Failure to appropriately address and resolve complaints from customers or other interested parties may result in NVLAP surveillance activity, additional proficiency testing, and/or suspension or revocation of accreditation.

3.10.2 Significant changes in a laboratory's key technical personnel or facilities may result in a NVLAP monitoring visit(s), and/or suspension of accreditation if the new personnel prove inadequately prepared or unsuited for the job. Loss of key personnel without immediate adequate replacement may result in laboratory's suspension.

3.10.3 If the laboratory does not demonstrate continued competence to perform biometrics conformance testing, NVLAP may suspend or revoke the laboratory's accreditation. The accreditation may be suspended or revoked if, any of the following statements is true:

- 25 % or more of the biometrics products test reports within one year are incorrect, invalid or deficient as defined by CAC, when applicable;

- more than 60 % of the personnel that participated in the latest (re)accreditation process have left the laboratory; or
- nonconformities are found during any on-site visit and are not addressed through corrective actions taken by the laboratory .

3.11 Denial and revocation of accreditation

This subclause contains no information additional to that provided in NIST Handbook 150, 3.11.

3.12 Voluntary termination of accreditation

This subclause contains no information additional to that provided in NIST Handbook 150, 3.12.

3.13 Appeals

This subclause contains no information additional to that provided in NIST Handbook 150, 3.13.

3.14 Conflict of interest

3.14.1 In order to ensure independence of the testing, neither the candidate laboratory nor other divisions within its parent corporation **shall** provide consulting services for the products that the laboratory tests under its NVLAP-accredited status (e.g., develop testing evidence, design advice, etc).

3.14.2 For any other services of the laboratory's parent corporation not listed in the subclause 3.14.1, the laboratory **shall** have an explicit policy and a set of procedures for maintaining a strict separation, both physical and electronic, between the laboratory testers and company's consultant teams, product developers, system integrators, and others who may have an interest in and/or may unduly influence the testing outcome. The laboratory **shall** have no financial interest for the work performed under the present scope of accreditation other than its conformance testing fees.

4 Management requirements for accreditation

This section presents the specific requirements an applicant laboratory **shall** satisfy to be recognized as competent to carry out cryptographic and security conformance testing under the Biometrics LAP.

4.1 Organization

4.1.1 The laboratory **shall** establish and maintain policies and procedures for maintaining laboratory impartiality and integrity in the conduct of Biometrics Products Testing. To avoid any conflict of interest, the laboratory policies and procedures **shall** ensure that neither the applicant laboratory nor other divisions within their parent corporation can perform conformance testing if is currently providing or has previously provided consulting services to the vendor for the SUT (e.g., develop testing evidence, design advice).

NOTE 1 A Biometrics laboratory may perform consulting services to provide clarification of the standards, the Derived Test Requirements, and other associated documents at any time during the life cycle of the SUT.

4.1.2 For any other services of the laboratory's parent corporation not listed in the subclause 4.1.1, the laboratory **shall** have an explicit policy and a set of procedures for maintaining a strict separation, both physical and electronic, between the laboratory testers and company's consultant teams, product developers, system integrators, and others who may have an interest in and/or may unduly influence the testing outcome.

4.1.3 A Biometrics laboratory **shall** have no financial interest for the work performed under the present scope of accreditation other than its conformance testing fees.

4.1.4 The laboratory **shall** not perform conformance testing on a module for which the laboratory has:

1. designed any part of the SUT,
2. developed original documentation for any part of the SUT,
3. built, coded or implemented any part of the SUT, or
4. any ownership or vested interest in the SUT.

NOTE 2 Provided that a Biometrics laboratory has met the other requirements, the laboratory may perform conformance testing on SUT produced by a company when:

- the laboratory has no ownership in the company,
- the laboratory has a completely separate management from the company, and
- business between the Biometrics laboratory and the company is performed under contractual agreements, as done with other clients.

4.1.5 A biometrics product testing laboratory may take existing vendor documentation for an existing SUT (post-design and post-development) and consolidate or reformat the existing information (from multiple sources) into a set format. If this occurs, the vendor **shall** be notified of this action when the conformance test report is submitted.

4.1.6 For additional guidance on laboratory organization, additional interpretations and clarifications concerning the conflict of interest and strategies for avoiding it, the laboratory **shall** also consult the guidance provided by CAC, when applicable. If any discrepancy in the provided information regarding accreditation process and/or conflict of interest rises, NVLAP's guidance supersedes any other documentation provided by CAC.

4.2 Management system

4.2.1 Prior to applying to NVLAP for accreditation, a laboratory **shall** have a fully implemented management system. A copy of the latest quality manual and relevant associated documents **shall** be sent to NVLAP with the application forms.

4.2.2 The laboratory **shall** complete the cross-reference section of the applicable checklists allowing the laboratory and NVLAP assessor(s) to verify that all requirements of clauses 4 and 5 and annexes A and B of NIST Handbook 150 and the corresponding NIST Handbook 150-25 are addressed in the management system documentation. The cross-reference document **shall** verify that all requirements of this handbook and clauses 4 and 5 and annexes A and B of NIST Handbook 150 are addressed and their locations clearly identified in the management system documentation.

4.2.3 The quality system **shall** provide policy and procedures to ensure routine checks of the competence of the staff involved in the conduct and evaluation of the biometrics products testing.

4.2.4 Prior to the on-site assessment, the assigned assessor(s) will review all relevant management system documentation for conformity with NVLAP requirements, including the requirements of this handbook and NIST Handbook 150. During this review, the assessor may request additional management system documents and/or records, which will be returned upon request. Because of the very large number of relevant standards in the Biometrics LAP, relevant test requirement(s), operator instructions and/or test procedures may be requested by the assessor for review in advance of the on-site assessment. The laboratory **shall** provide all requested material in a timely manner.

4.3 Document control

4.3.1 Data collected for biometric testing is also identified as "Personally Identifiable Information" (PII) and **shall** be properly collected, stored, transported, transmitted and disposed such that the information is not disclosed to unauthorized parties. PII information can include both paper and electronic formats in any information system.

4.3.2 The laboratory **shall** implement policies and procedures for handling and properly safeguarding the "Personally Identifiable Information" (PII) that address safeguarding data at rest, properly protecting any PII data in transfer and disclosure of any PII data. The policies and procedures should be in compliance with all federal laws (e.g., Privacy Act of 2005; Information Protection and Security Act; Identity Theft Prevention Act of 2005; etc) and state laws (e.g., Massachusetts' Public Records Law and Fair Information Practices Act; California law no. SB 1386 of September 25, 2002) that address "acceptable uses" of PII and **shall** be included in the quality manual and/or related documents.

NOTE As a safe harbor, laboratories could limit the risk of PII disclosure by:

- unless encrypted, prohibiting mobile devices use for storing, transferring or transmitting PII data;
- implementing multi-factor authentication for access to the PII data when remote access to the database can not be avoided;
- encrypting the databases that contain PII, when ever database size permits it;
- when database size does not allow full data encryption, splitting PII data into indirect data element that can not identify individuals when stored in separate databases.

4.3.3 When applicable, the quality manual and related documentation **shall** include procedures and policies for handling software and maintaining the software's integrity according to the copyright and secrecy status.

4.4 Review of requests, tenders and contracts

4.4.1 The contract review **shall** be conducted to ensure that a laboratory is capable of providing the service, and that the requirements, rights, and responsibilities of the parties are understood.

4.4.2 If the laboratory conducts testing at clients sites or any selected site other than the laboratory's site accredited for conformance testing, the site **shall** meet all requirements pertinent to the conformance testing of the SUT as the accredited testing laboratory.

NOTE The laboratory may use checklists and/or contract agreements to satisfy this requirement.

4.4.3 The laboratory **shall** establish and maintain documented procedures for the review of contracts between the laboratory and clients. Policies for documents storage and maintenance of contracts under confidentiality, non-disclosure agreements, marked as secret, or copyright protected, **shall** be well defined according to the document's status. These documents **shall** be protected commensurate with their classification and/or sensitivity, and access to them **shall** be given only to authorized personnel.

4.4.4 The testing laboratory and client **shall** agree in writing what constitutes the SUT and what constitutes the environment within the SUT. For this program, the environment includes but it is not limited to:

- the specific test platform,
- the test configuration, and
- the external environment.

4.5 Subcontracting of tests and calibrations

4.5.1 If the mechanism by which the laboratory employs staff members is through subcontracting, any key personnel who are contractors **shall** be identified and listed in the laboratory's application for accreditation. When a change in the key personnel employed through subcontracting occurs or when the direct supervision of this category of personnel is not possible, a report **shall** be submitted to NVLAP.

NOTE Any of the above-listed changes in the personnel employed through subcontracting can affect laboratory's accreditation status.

4.5.2 If subcontracting is used as a mechanism by which the laboratory fulfills and/or enhances the conformance testing process, the subcontracting laboratory **shall** employ either services provided only by NVLAP-accredited laboratories or by laboratories that satisfy all testing requirements as indicated in the NIST Handbook 150, NIST Handbook 150-25 and all documents provide by CAC, when applicable. In the later instance, the subcontracting laboratory:

1. **shall** justify the selection explaining why this particular subcontractor was selected and how the subcontractor satisfies the testing requirements; and
2. **shall** assume full responsibility for the outcome of the conformance testing performed by the subcontractor.

4.6 Purchasing services and supplies

There are no requirements additional to those set forth in NIST Handbook 150.

4.7 Service to the customer

There are no requirements additional to those set forth in NIST Handbook 150.

4.8 Complaints

There are no requirements additional to those set forth in NIST Handbook 150.

4.9 Control of nonconforming testing and/or calibration work

There are no requirements additional to those set forth in NIST Handbook 150.

4.10 Improvement

There are no requirements additional to those set forth in NIST Handbook 150.

4.11 Corrective action

There are no requirements additional to those set forth in NIST Handbook 150.

4.12 Preventive action

There are no requirements additional to those set forth in NIST Handbook 150.

4.13 Control of records

4.13.1 General

4.13.1.1 The laboratory **shall** maintain a functional record keeping system for each client. Records **shall** be readily accessible and complete. Digital media **shall** be logged and properly marked, and they **shall** be

properly and securely backed-up. Entries in paper-base laboratory notebooks **shall** be dated and signed or initialed.

4.13.1.2 Digital records **shall** contain entries of pertinent staff/date information for data as required in the quality manual and, as an established safeguard, **shall** have means to preserve integrity of records, and **shall** have means for maintenance without later unauthorized modifications.

4.13.1.3 Software and data protected by non-disclosure agreements or classified as confidential **shall** be stored according to the vendor and/or government requirements and commensurate with the data sensitivity, and access **shall** be granted only to the authorized personnel. An access log file **shall** be maintained.

4.13.1.4 The testing laboratory **shall** take steps to ensure that no third party can gain access to on-line records or to hard copies of he records, either during, or after testing.

4.13.1.5 If a client's system on which testing is conducted is potentially open to access by third parties, the testing laboratory **shall** ensure that the client controls the testing environment so that the third parties do not gain access to that system during testing.

4.13.1.6 Records of all management system activities including training, internal audits, and management reviews **shall** be securely saved for future reviews. The integrity of electronic documents **shall** be assured by means commensurate with the data sensitivity. Documents in hard copy form **shall** be marked and stored in a secure location and, if necessary, a file logging any access, change, or addition **shall** be maintained to preserve document's integrity and prevent unauthorized changes.

4.13.1.7 Laboratories **shall** maintain records of the configuration of test equipment and all analyses to ensure the suitability of test equipment to perform the desired testing.

4.13.2 Technical records

4.13.2.1 During the on-site assessment, the records that will be reviewed include, but are not limited to:

1. management system;
2. staff training dates and competency reviews;
3. conformity assessment software versions and updates, when applicable;
4. versions and updates of mandated testing tools;

5. documentation for mandated testing tools;
6. statement of security policy;
7. conditions for testing when applicable;
8. test equipment and instrumentation calibration (software documentation updates, if applicable);
9. acceptance/rejection of biometrics systems or components submitted for test;
10. comprehensive logs for tracking samples and test activities;
11. records of problems with test equipment or system(s), records that demonstrate such equipment or system(s) were removed from service, records of repairs or resolution of problems;
12. test data (including any diagrams, algorithm test suites, photos, and graphic images) and official reports; and
13. correspondence files including questions submitted and responses.

4.13.2.2 The final test results and/or the test reports generated for the SUT using biometrics testing tools or biometrics data, **shall** be kept by the laboratory following the completion of testing for the life of the SUT, or as specified by the client in writing. Records may include hard or digital copies of the official test results and the test results error file(s). Records **shall** be stored in a manner that assures survivability, confidentiality, integrity, accessibility and retrievability.

4.13.2.3 A copy of the final test results and/or the test reports generated using biometrics products testing tools for the SUT, when applicable, **shall** be submitted to the vendor.

4.14 Internal audits

4.14.1 In the case where only one member of a laboratory staff is competent in some technical aspects of the program, or is the only expert in conducting a specific aspect of the conformance testing, in order to audit this technical aspect, an external audit by an appropriate expert **shall** be necessary.

4.14.2 In the case where only one member of a laboratory staff is competent in some technical aspects of the program, or is the only expert in conducting a specific aspect of the conformance testing, audits **shall** include, at a minimum, but not be limited to:

1. a review of documentation and instructions,
2. adherence to procedures and instructions, and
3. documentation of the audit findings.

4.15 Management reviews

4.15.1 The laboratory **shall** perform at least one management review prior to the first full on-site assessment.

4.15.2 The most recent management review report **shall** be available for review before or during the NVLAP on-site assessment visit.

5 Technical requirements for accreditation

5.1 General

The quality manual **shall** contain, or refer to documentation that describes and details the laboratory's implementation of procedures covering all of the technical requirements in NIST Handbook 150 and this handbook.

5.2 Personnel

5.2.1 The laboratory **shall** maintain competent administrative and technical staff that are:

1. knowledgeable of all biometrics standards and publications listed as references in this handbook pertaining to the specific tests found on the laboratory's scope(s) of accreditation;
2. familiar with the biometrics terminology, biometrics modalities, biometrics systems and sub-systems;
3. familiar with the "acceptable use" (collection, storage, handling, etc) of the PII as described in the federal and state laws;
4. familiar with the biometrics products testing protocols, procedures and tools when applicable; and
5. familiar with human-crew interaction and human-crew rights and responsibilities when applicable.

5.2.2 The laboratory **shall** maintain a list of personnel designated to fulfill NVLAP requirements including:

1. laboratory's director,
2. Authorized Representative,
3. Approved Signatories,
4. team leaders, and
5. key technical persons in the laboratory.

NOTE Significant changes in a laboratory's key technical personnel or facilities may result in a NVLAP monitoring visit(s), and/or suspension of accreditation if the new personnel prove inadequately prepared or unsuited for the job(s). Loss of key personnel without immediate adequate replacement may result in the laboratory's suspension.

5.2.3 The laboratory **shall** identify a staff member as quality manager with overall responsibility for quality assurance and for maintenance of the quality manual. An individual may be assigned or appointed to serve in more than one position; however, to the extent possible, the laboratory director and the quality manager positions should be independently staffed.

5.2.4 The quality manager **shall** receive management system training preferably in ISO/IEC 17025. If training is not available in ISO/IEC 17025, minimum training should be acquired in the ISO 9000 series, especially ISO 9001, or equivalent with particular emphasis on internal auditor training.

5.2.5 The laboratory **shall** maintain position descriptions, training records and resumes for responsible supervisory personnel and laboratory staff members who have an effect on the outcome of biometric testing.

5.2.6 Laboratories **shall** document the required qualifications for each staff position. The staff information may be kept in the official personnel folders or in separate, official folders that contain only the information that the NVLAP assessors need to review.

5.2.7 The laboratory **shall** notify NVLAP within 30/ days of any change in key personnel. When key laboratory staff is added, the notification of changes **shall** include a current resume for each new staff member.

5.2.8 The laboratory key technical personnel who conduct biometrics products testing activities **shall** have at least a Bachelor of Science in Computer Science, Computer Engineering, Electrical Engineering, Human Factors or similar technical discipline or equivalent experience – For more details regarding the staff members' required expertise for biometrics products conformity assessment, see Annex A.

5.2.9 Laboratory staff collectively **shall** have knowledge or experience in the following areas

1. biometrics modalities available;
2. design/analysis of biometrics systems and sub-systems;
3. database systems;
4. biometrics products testing protocols and procedures;
5. biometrics data structures ;
6. biometrics standards and special publications referenced in this handbook, and
7. familiarity with operating systems under which the biometric systems are operating.

5.2.10 In addition to 5.2.9, the laboratory technical personnel **shall** have knowledge of or experience with any specific technology upon which testing is conducted.

5.2.11 The laboratory **shall** have documented a detailed description of its training program for new and current staff members. Each new staff member **shall** be trained for assigned duties. The training program **shall** be updated and current staff members **shall** be retrained when relevant standards or scope of accreditation changes, or when the individuals are assigned new responsibilities. Each staff member may receive training for assigned duties either through on-the-job training, formal classroom study, attendance at conferences, or another appropriate mechanism. Training materials that are maintained within the laboratory **shall** be kept up-to-date.

5.2.12 The laboratory **shall** have a competency review program and procedures for the evaluation and maintenance of the competency of each staff member for each test method the staff member is authorized to conduct. An evaluation and an observation of performance **shall** be conducted annually for each staff member by the immediate supervisor or a designee appointed by the laboratory director, or a designee appointed by the laboratory director. A record of the annual evaluation of each staff member **shall** be dated and signed by the supervisor and the employee. A description of competency review programs **shall** be maintained in the management system.

5.2.13 NVLAP does not make a distinction between laboratory employees and individuals hired under a subcontracting agreement. NVLAP requires that the laboratory maintain responsibility for and control of any work performed within its scope of accreditation. To that end, the laboratory **shall** ensure all individuals performing evaluation activities satisfy all NVLAP requirements, irrespective of the means by which individuals are compensated (e.g., the laboratory **shall** ensure all test personnel receive proper training and are subject to annual performance reviews, etc.)

5.2.14 The records for each staff member having an effect on the outcome of testing **shall** include: position description, resume/CV/bio (matching person to job), duties assigned, annual competence review, and training records and training plans.

5.2.15 In order to maintain confidentiality and impartiality, the laboratory **shall** maintain proper separation between personnel conducting biometric tests and other personnel inside the laboratory or outside the laboratory, but inside the parent organization.

5.2.16 The laboratory personnel handling PII documents **shall** obey all laboratory's policies and procedures that implement the federal and state privacy laws that stress the "acceptable uses" of PII

5.2.17 For scope of accreditation and test method-specific requirements additional to those set forth in 5.2, see Annex A.

5.3 Accommodation and environmental conditions

5.3.1 The laboratory **shall** have adequate facilities to meet the requirements for NVLAP accreditation. This includes facilities for security conformance testing, record-keeping, document storage, and hardware and software storage. The laboratory **shall** have access to staff training facilities.

5.3.2 A protection system **shall** be in place to safeguard customer proprietary hardware, software, test data, electronic and paper records, and other materials. This system **shall** protect the proprietary materials and information from personnel outside the laboratory, visitors to the laboratory, laboratory personnel without a need to know, and other unauthorized persons. Laboratories **shall** have systems (e.g., firewall, intrusion detection) in place to protect internal systems from unauthorized, malicious external entities. If testing activities are conducted at more than one location, all locations **shall** meet NVLAP requirements and mechanisms **shall** be in place to ensure secure communication between all locations.

5.3.3 The laboratory **shall** have regularly updated protection for all systems against viruses and other malware. The laboratory **shall** have an effective backup system to ensure that data and records can be restored in the event of their loss.

5.3.4 Laboratory networks used to conduct biometrics tests that involve data identified as Personal Identity Information (PII) **shall** be completely isolated and safeguarded such that no external internet connectivity can be used to obtain access to sensitive data.

5.3.5 If the laboratory is conducting multiple simultaneous test campaigns, it **shall** maintain a system of separation between the products of different customers and between different products. This includes the product being tested, the test platform, peripherals, documentation, electronic media, manuals, and records.

5.3.6 The laboratory **shall** meet the equipment and environment requirements specific to biometric testing specified in the test methods.

5.3.7 If testing activities will be conducted outside of the laboratory, the management system **shall** include appropriate procedures testing activities at customer sites or other off-site locations. For example, customer site procedures may explain how to secure the site, where to store records and documentation, and how to control access to the test facility.

5.3.8 If the laboratory is conducting its testing at the customer site or other location outside the laboratory facility, the environment **shall** conform, as appropriate, to the requirements for the laboratory environment. If a customer's system on which a testing is conducted is potentially open to access by

unauthorized entities during testing, the test laboratory **shall** control the environment. This is to ensure that the systems are in a defined state compliant with the requirements for the tests before starting to perform test work and that the systems ensure that unauthorized entities do not gain access to the system during testing.

5.3.9 For scope of accreditation and test method specific requirements additional to those set forth in 5.3, see Annex A.

5.4 Test and calibration methods and method validation

5.4.1 General

Tests may be conducted at the client or laboratory site or at another mutually agreed upon site. When testing is performed at a client site, all NVLAP requirements pertaining to equipment and environment as they apply to the tests scheduled outside the laboratory's accredited location, **shall** apply. Moreover, only the personnel of the NVLAP-accredited laboratory **shall** perform all actions necessary to administer the tests and record the results, including the loading, compiling, configuring, and execution of any of the mandated testing tools.

5.4.2 Selection of methods

Laboratories **shall** use the test methods and tests derived from their scopes of accreditation. For more specific information regarding methods selection for each scope of accreditation, see Annex A.

5.5 Equipment

5.5.1 Testing equipment or verification records **shall** include, when applicable, the following:

a) equipment name or description;
b) model, style, serial number or other unique identifier;
c) manufacturer;
d) date received and date placed in service;
e) current location, where appropriate;
f) condition when received (e.g., new, used, reconditioned);
g) copy of the manufacturer's instructions, where available;
h) notation of all equipment variables requiring verification;
i) the range of verification;

j) the resolution of the instrument and its allowable error;
k) date of next calibration and/or verification;
l) date and result of last calibration and/or verification;
m) details of maintenance carried out to date and planned for the future;
n) history of any damage, malfunction, modification or repair;
o) identity of the laboratory individual or external service responsible for calibration; and
p) source of reference standard and traceability.

5.5.2 For its scope of accreditation, the laboratory **shall** have appropriate hardware, software, and computer facilities to conduct biometrics products testing. This includes but is not limited to:

a) required software test suites;
b) testing equipment for physical tests; and
c) all special equipment necessary to perform all tests derived from the most current version of the standard.

5.5.3 The equipment used for conducting biometric testing **shall** be maintained in accordance with the manufacturer's recommendations or in accordance with internally documented laboratory procedures, as applicable. Test equipment refers to software and hardware products or other assessment mechanisms used by the laboratory to support the biometric testing of the SUT.

5.5.4 When applicable, the laboratory **shall** own, load and run testing tools provided or validated by an institution indicated by the Conformity Assessment Council, and produce test results using such tools wherever appropriate. When the testing tool is recommended or provided by CAC, the tool may not be altered or changed and **shall** not be distributed outside the laboratory. A list of the mandated testing tools for each scope of accreditation is provided in Annex A and/or Biometrics LAP web site.

5.5.5 When applicable, a testing laboratory **shall** have procedures defining the test to be performed whenever major or minor changes are made to any testing tool. This is necessary to ensure that harmonization is maintained as appropriate with other testing laboratories and that correctness is maintained with respect to the relevant standard(s) or specification(s)..

5.5.6 When a given test tool or equipment configuration must be used but there are no suitable validation services available outside the testing laboratory to which validation is applicable, and no suitable reference implementation that could be used by the testing laboratory to validate the test tool or equipment configuration, then the testing laboratory **shall** define and document the procedures and methods that it uses to check on the correct operation of the test tool or equipment configuration.

5.5.7 For scope of accreditation and test method-specific requirements additional to those set forth in 5.5, see Annex A.

5.6 Measurement traceability

5.6.1 General

For Biometric Testing, "traceability" is interpreted to mean that the assessment test tools and test harnesses **shall** be traceable back to the underlying requirements of the normative standards listed in this handbook, subclause 1.4, Annex A and on the Biometrics LAP website <http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm> This means that each abstract test case and its evaluation methodology are traceable to specific biometric requirement listed in the governing documentary standard, and that they are achieved via the assertions and associated Derived Test Requirements documented in the testing tool in use.

5.6.2 Calibration

5.6.2.1 Test tools

5.6.2.1.1 For biometric and security testing purposes, calibration means verification of correctness and suitability. Any test tool used to conduct biometric testing and which is not part of the SUT **shall** be evaluated in isolation to make sure it correctly represents and assesses the test assertions it claims. When possible, test tools should also be examined to ensure that they do not interfere with the conduct of the test and do not modify or impact the SUT. Software testing tools, by necessity, alter the runtime environment in which the SUT performs. Therefore, such tools should be examined to ensure minimum impact to the SUT.

5.6.2.1.2 Laboratories **shall** maintain records of the configuration of test equipment and all analysis to ensure the suitability of test equipment to perform the desire testing.

5.6.2.2 Test equipment

5.6.2.2.1 The equipment used for conducting the conformance tests **shall** be maintained and recalibrated in accordance with the test tool author's recommendation, only if applicable, as specified in the test method, or annually, whichever results in shorter time periods between calibrations.

5.6.2.2.2 The reference standards used and the environmental conditions at the time of calibration **shall** be documented for all calibrations. Calibration records and evidence of the traceability of the reference standards used **shall** be made available for inspection during the on-site visit.

5.6.3 Testing

5.6.3.1 When applicable, confirmation of the most current version of testing tools **shall** be assured before conducting a test. This may be accomplished through configuration management for all hardware and software, or through software version control. Records **shall** be kept of the date and extent of all hardware and software upgrades and updates.

5.6.3.2 Laboratories **shall** use the test methods in specific test methodology standards or DTRs. When exceptions are deemed necessary for technical reasons, the client **shall** be informed and details **shall** be described in the test report. Substantive documentation **shall** be provided on exceptions taken to the test method and DTRs to ensure that the correct and required precision and interpretation of the test assertion is maintained. When necessary, these reports may be used to update abstract test cases, testing tool when applicable and its accompanying documentation.

5.6.3.3 For more details on the specific test methods corresponding to different scopes of accreditation see Annex A and the Biometrics LAP web site <http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm>

5.7 Sampling

5.7.1 If laboratories apply for biometrics scopes of accreditation that involve testing with human subjects, the laboratory **shall** implement policies and procedures that:

- **a)** protect the physical and psychological well-being of the human subjects during testing,
- **b)** serve as a safeguard to protect against errors in ethical judgment,
- **c)** assure human subject testing is in compliance with Part 27 of Title 15 of the Code of Federal Regulations.

5.7.2 The laboratory **shall** submit all policies and procedures defining biometrics products testing with human subjects and all test suites used for this category of biometrics products testing to an Institutional Review Board (IRB) for review and provide proof of IRB approval.

5.7.3 The laboratory **shall** ensure that the disposition of any intellectual property generated via the sampling of biometrics data from human subjects is compatible with each testing methodology standard, DTR and it complies with vendor's requirements when applicable.

5.8 Handling of test and calibration items

5.8.1 Laboratories **shall** protect all products under testing and test tools from modifications of any kind or unauthorized access and use. Laboratories **shall** ensure that export controlled equipment, such as fingerprint scanners, are protected in accordance with Federal Export Administration Regulations (EAR).

5.8.2 When the SUT consists of software components, the laboratory **shall** ensure that a configuration management is in place to prevent unauthorized modifications. This configuration management **shall** uniquely identify each software component of the SUT and control and document modifications to any of the software components.

5.9 Assuring the quality of test and calibration results

There are no requirements additional to those set forth in NIST Handbook 150.

5.10 Reporting the results

5.10.1 General

The laboratory **shall** issue test reports of its work which accurately, clearly, and unambiguously present the test conditions, the test setup when varies from the standard protocol, the test results, and all other information necessary to reproduce the test. Any deviations or omissions from the standard **shall** be clearly indicated. Test reports to clients **shall** meet contractual requirements in addition to meeting the requirements of NIST Handbooks 150 and 150-25, governing ANSI/INCITS, FIPS and other standards. Test reports **shall** provide all necessary information to permit reproduction of the test and to obtain consistent results.

5.10.2 Test reports

5.10.2.1 If a NIST/ITL-supplied test report tool or other reporting methodologies are provided, the laboratory **shall** follow those requirements and use those supplied test tools.

5.10.2.2 Whenever test cases are such that an analysis of the observations by the testing staff is required in order to interpret the results before stating them in a test report, the testing laboratory **shall**

have objective procedures to be followed by the test operators performing the analysis, sufficient to ensure that the repeatability, reproducibility, and objectivity of the test results can be maintained.

5.10.2.3 Test reports bearing the NVLAP symbol may be written for more than one purpose:

a) Reports that are produced under contract and intended for use by the client

Reports intended for use only by the client **shall** meet client/laboratory contract obligations and be complete, but need not necessarily meet all conformity assessment requirements.

b) Reports to be submitted to the vendors for biometrics product conformity assessment

Conformity assessment test reports intended for submission by vendors to CAC or to any institution designated by CAC **shall** meet the requirements of the associated DTRs and IG when applicable, as well as the requirements of NIST Handbook 150, NIST Handbook 150-25 and any other programmatic documentation guidance.

5.10.3 Electronic transmission of conformity assessment test results

5.10.3.1 A laboratory may submit either a printed or an electronic report as instructed by the vendor. The electronic version **shall** have the same content as the printed reports and **shall** be generated using a software application that is acceptable to CAC if the vendor intends to submit the test results for assessment. A controlled copy of the report **shall** be placed in the laboratory's records. A mechanism that ensures the control copy's integrity and confidentiality commensurable with the data sensitivity and/or programmatic requirements **shall** exist.

5.10.3.2 The laboratory **shall** provide an integrity and confidentiality mechanism commensurable with the data sensitivity and/or programmatic requirements and/or government requirements when electronic delivery of the test reports to the vendor is employed. Confidentiality mechanisms **shall** be employed to ensure that the test report cannot be disclosed to anyone other than the intended recipient(s), while an integrity mechanism **shall** exist to ensure that the test report is not maliciously modified.

5.10.4 Amendments to test reports and calibration certificates

5.10.4.1 For test reports created for assessment purposes by CAC or any institution designated by CAC, the laboratory **shall** issue corrections or additions to a test report only by a supplementary document that is suitably marked and that meets CAC's requirements.

5.10.4.2 For test reports created for purposes other than official SUT assessment, the laboratory **shall** issue corrections or additions to a test report only by a supplementary document suitably marked; e.g., "*Supplement to test report serial number […]*". If the change involves a test assertion, this document

shall specify which test assertion is in question, the content of the result, the explanation of the result, and the reason for acceptance of the result.

6 Additional requirements

See Annex A for additional requirements.

Annex A

(normative)

A.1 Additional general information

NOTE 1 The Annex A provides additional information and requirements as they pertain to each scope of accreditation. Clause A.2 describes the scopes of accreditation available under Biometrics LAP, supplements the reference list provided in clause 1.4 and the terms and definitions list from clause 1.5 of the this Handbook with the scope specific information. Clauses A.3, A.4 and A.5 are structured to map directly to clauses 3, 4, and 5 of the document and to provide per scope of accreditation all necessary information and requirements (e.g. subclause A.3.4 "Additional Proficiency Testing Requirements" supplements the subclause 3.4 "Proficiency Testing").

NOTE 2 To make a clear distinction between the accreditation program and the conformity assessment program and to emphasize the separation of duties for each key player in these processes, NVLAP is including here two informative diagrams of the conformity assessment process, with two different operational scenarios, and the rapport between:

- the Procurement Agency and/or Conformity Assessment Council,
- the third-party laboratory, and
- the consumers (e.g., U.S. Government agencies).

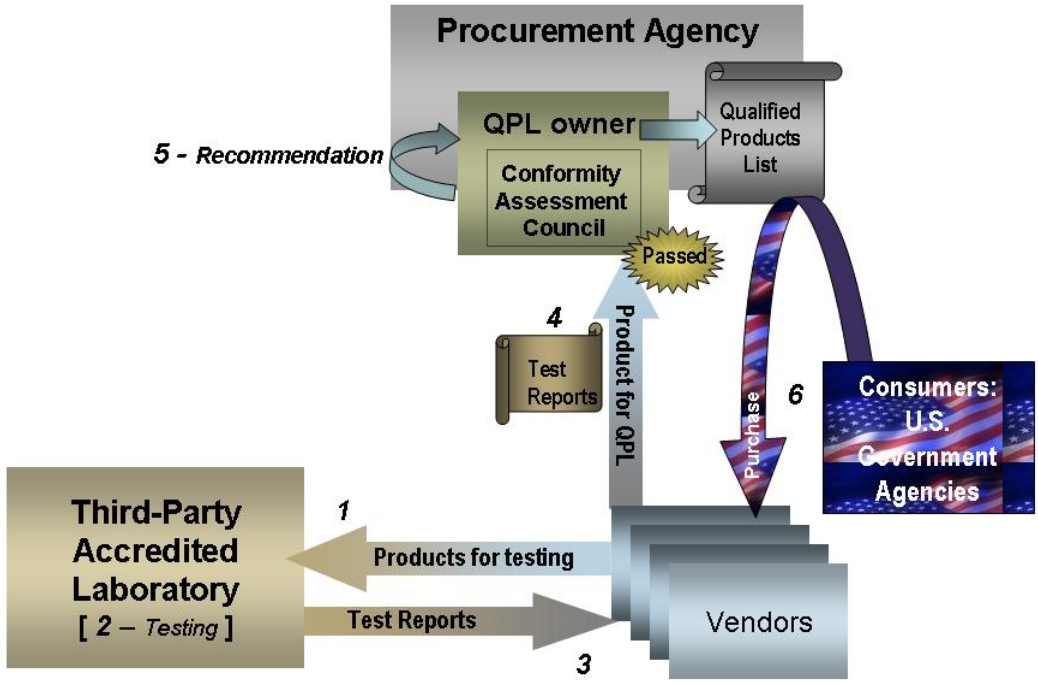


Figure A.1: Assessment Process – with maintained QPL

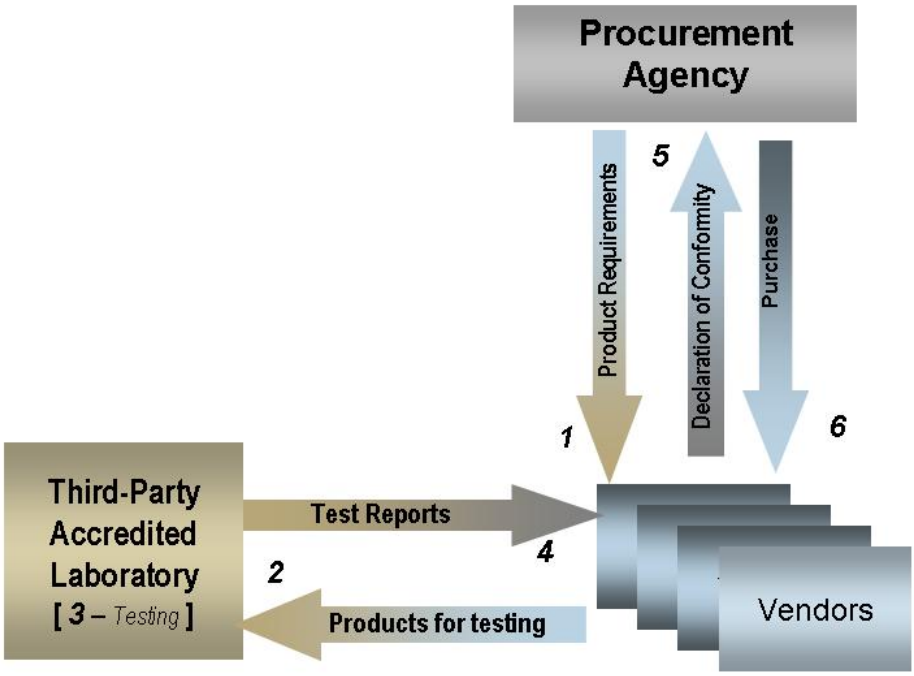


Figure A.2: Acceptance Process (based on Supplier's Declaration of Conformity, no QPL)

A.2 Scopes of accreditation, test methods, additional references, terms and definitions

A.2.1 Scopes of accreditation

NOTE 1 NVLAP offers to all interested laboratories a flexible, dynamical system of selecting a compound scope of accreditation under the Biometrics LAP that best fits the laboratory's level of expertise and equipment.

A.2.1.1 The minimum level of required expertise for all biometric scopes of accreditation is described as "*Biometrics Testing and Analysis (30/BTA)*" testing and is considered the foundation of all

scopes of accreditations for the Biometrics LAP. However, BTA is not available as a stand-alone scope of accreditation. It **shall** be associated with one of the other scopes offered.

A.2.1.2 For strictly conformance to standards testing, the minimum required expertise is described as "Conformance Testing (30/CT)" and is not available as a stand-alone scope of accreditation. This scope **shall** be associated with either "Technical Interface Standard testing (30/TIST)" or "Data Interchange Standards Conformance Testing (30/DISCT)" scopes.

A.2.1.3 For any scenario testing, the minimum required expertise is described as "*Scenario Testing (30/ST)*" and is not available as a stand-alone scope of accreditation. This scope **shall** be associated with either "*System Level Testing (30/SLT)*" or "*Biometric Sample Collection Testing (30/BSCT)*" scopes.

A.2.1.4 Under the Scenario Testing (30/ST), the minimum required expertise for performance testing is described as "*System Level Testing (30/SLT),*" and is not available as a stand-alone scope of accreditation. This scope **shall** be associated with either "*Conformance to Performance Specifications Testing (30/CPST)*", "*Graded Performance Testing (30/GPT),*" or "*Pure Performance Testing (30/PPT)*" scopes.

NOTE 1 The goal of scenario testing is to determine the overall system performance in a prototype or simulated application. Testing is carried out on a complete system in an environment that models a real-world target application of interest. Each tested system will have its own acquisition sensor and so will receive slightly different data. Consequently, care will be required that data collection across all tested systems is in the same environment with the same population. Test results will be repeatable only to the extent that the modeled scenario can be carefully controlled.

NOTE 2 A chained list showing all currently offered scopes of accreditation is presented below. For the most current information, on scopes available, see the Biometrics LAP website at <http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm>. The list indicates that any descendent scope of accreditation mandates all scopes of accreditation listed above it in the chain to be elected too. For example, the selection of the Data Interchange Standards Conformance Testing (30/DIST) scope, mandates as prerequisites Conformance Testing (30/CT) and Biometric Testing and Analysis (30/BTA) scopes as well.

☒ **30/BTA** Biometric Testing and Analysis

- ☒ **30/CT** Conformance Testing
  - ☐ **30/TISCT** Technical Interface Standards Conformance Testing
  - ☐ **30/DISCT** Data Interchange Standards Conformance Testing
- ☒ **30/ST** Scenario Testing – Human Crew (Laboratory)
  - ☒ **30/SLT** System Level Testing (enrollment/verification)
    - ☐ **30/CPST** Conformance to Performance Specifications Testing
    - ☐ **30/GPT** Graded Performance Testing
    - ☐ **30/PPT** Pure Performance Testing

- ☐ **30/BSCT** Biometric Sample Collection Testing

☐ **30/IT** Interoperability Testing

- ☐ **30/SIT** Sensors Interoperability Testing
- ☐ **30/MTMIT** Modality-Specific Template/Matcher Interoperability Testing (one-to-one or one-to-many)

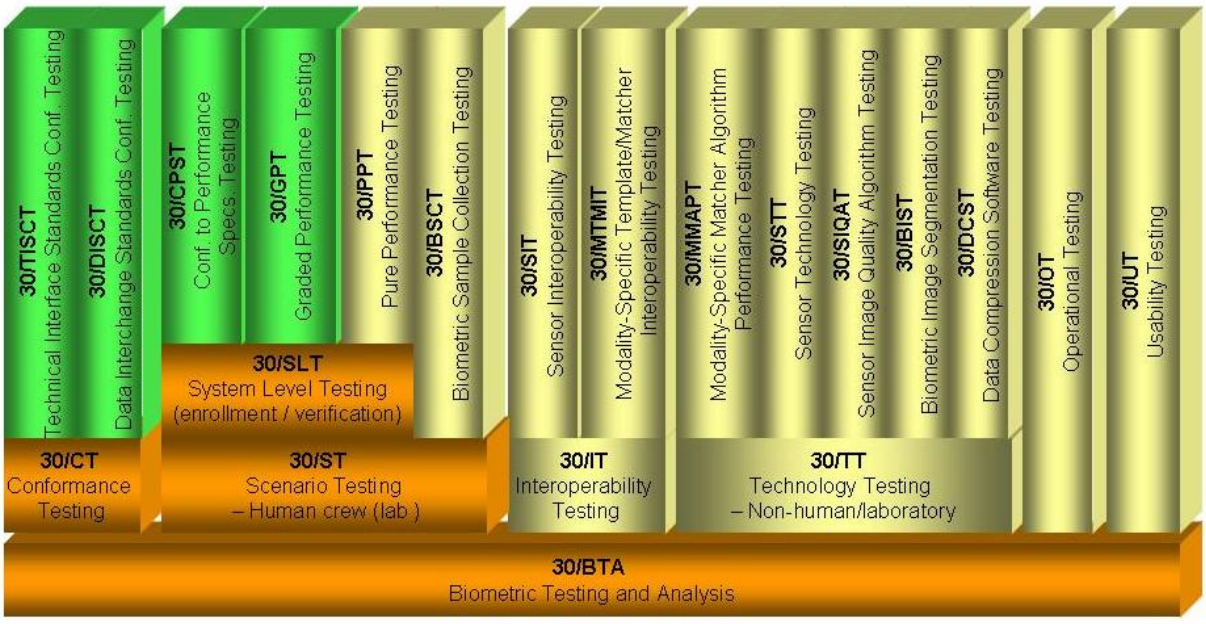
☐ **30/TT** Technology Testing – Non-human/Laboratory

- ☐ **30/MMAPT** Modality-Specific Matcher Algorithm Performance Testing
- ☐ **30/STT** Sensors Technology Testing
- ☐ **30/SIQAT** Sensor Image Quality Algorithm Testing
- ☐ **30/BIST** Biometric Image Segmentation Testing
- ☐ **30/DCST** Data Compression Software Testing

☐ **30/OT** Operational Testing

☐ **30/UT** Usability Testing

NOTE 3 Next chart gives a graphical representation of the list presented above.



Legend:

30/ **=** NVLAP code for Biometrics Products Testing, which appears as the first two digits in each NVLAP test method code.
BTA = Biometric Testing and Analysis
CT = Conformance Testing
TISCT = Technical Interface Standards Conformance Testing
DISCT = Data Interchange Standards Conformance Testing
ST = Scenario Testing – Human Crew (Laboratory)
SLT = System Level Testing (enrollment/verification)
CPST = Conformance to Performance Specifications Testing
GPT = Graded Performance Testing
PPT = Pure Performance Testing
BSCT = Biometric Sample Collection Testing
IT = Interoperability Testing
SIT = Sensor Interoperability Testing
MTMIT = Modality-Specific Template/Matcher Interoperability Testing
TT = Technology Testing – Non-human/Laboratory
MMAPT = Modality-Specific Matcher Algorithm Performance Testing
STT = Sensor Technology Testing
SIQAT = Sensor Image Quality Algorithm Testing
BIST = Biometric Image Segmentation Testing
DCST = Data Compression Software Testing
OT = Operational Testing
UT = Usability Testing

Figure A.3: Scopes of Accreditations

NOTE 4 Table A-1 provides a listing of products, together with their definitions, that are or will be addressed by Handbook 150-25. This table is intended to illustrate that testing of biometric products may be performed at various levels or combinations, such as components, modules, subsystems or systems. The product types are broad categories that span different modalities and media. The products listed below are representative, and are not necessarily all-inclusive.

Table A-1 Tested Biometric Subsystems, Devices and/or Modules

Item	Product	Type	Function
1	Biometric Capture Device (all modalities; ten-print, single finger, face, iris, etc.)	Biometric Device	Device that captures image (sample) data for use by biometric subsystem
2	Biometric Template Generator (all modalities; fingerprint, face, iris, etc.)	Biometric Software Module	Software that generates a template from an image (sample) [(also known as feature extractor]
3	Template matcher (all modalities;	Biometric	Software that matches a sample template

	fingerprint, face, iris, etc.)	Software Module	with a stored template
4	Matcher decision software module	Biometric Software Module	Software that makes a decision based on the matcher score(s) or classification decision
5	Biometric Data Segmenter (all modalities; ten-print, face, iris, etc.)	Biometric Software Module	Software that extracts and categorizes useful part(s) of a raw input sample (e.g. fingerprint segmenter, face finder/extractor)
6	Biometric Sample Quality Software - Image Data Quality (all modalities; ten-print, single finger, face, iris, etc.)	Biometric Software Module	Software that computes metrics indicating quality of biometric image (sample)
7	Biometric sample compression module	Biometric Software Module	Software that compresses a biometric sample (image data)
8	Enrollment Subsystem (all modalities; ten-print, single finger, face, iris, etc.) (portable or stationary)	Biometric Subsystem	Subsystem that captures biometric samples and meta-data (e.g., biographic data), determines sample quality (if required), formats the data for use by the other systems (e.g., Identity Management System [IDMS]), and compresses the data (if required).
9	Verification Subsystem (all modalities; fingerprints, face, iris, etc.)	Biometric Subsystem	Subsystem that captures biometric samples, matches the sample to an enrolled template(s), interfaces with the physical or logical access control system and indicates the response from the system.
10	Biometric Access Control System	Biometric System	A combination of an Enrollment Subsystem and a Verification Subsystem tested as a combined system.

A.2.2 Test methods

For each scope of accreditation, the test methods are listed below. When a hierarchically higher scope is elected, all test methods associated with the prerequisite scopes also become mandatory. Test methods numeric code is form by concatenation of the NVLAP code for Biometrics Products Testing (“30”), “/”

delimiter, the abbreviation of the scope's name (e.g., "TISCT" for the "*Technical Interface Standards Conformance Testing"* scope of accreditation) and a sequence number (e.g., "01" for first test method).

A.2.2.1 Test Methods for the Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

The minimum level of required expertise is described as "Biometrics Testing and Analysis (BTA)" and it is covered by the 30/BTA scope of accreditation. As already stated, 30/BTA is not a stand-alone scope of accreditation, and it is mandated as a pre-requisite for all other scopes of accreditation, therefore no specific test method is associated with it.

A.2.2.2 Test Methods for the Conformance Testing (30/CT) Scope of Accreditation

The minimum level of required expertise for biometrics conformance testing is covered by the "*Conformance Testing (30/CT)*" scope of accreditation. This scope of accreditation is mandated as a pre-requisite for the "*Technical Interface Standards Conformance Testing (30/TISCT)*" and for the "*Data Interchange Standards Conformance Testing (30/DISCT")* scopes of accreditation. Because the 30/CT scope of accreditation is not offered as a stand alone scope of accreditation, no test methods are associated with it.

A.2.2.3 Test Methods for the Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

30/TIST01 Conformance testing for the Biometric Application Programming Interface **(**BioAPI) – national standards.
30/TIST02 Conformance testing for the Biometric Application Programming Interface **(**BioAPI) – international standards.
30/TIST03 Conformance testing for Common Biometric Exchange Formats Framework (CBEFF) biometrics information records – national standards.
30/TIST04 Conformance testing for Common Biometric Exchange Formats Framework (CBEFF) biometrics information records – international standards.

A.2.2.4 Test Methods for the Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

30/DISCT01 Conformance Testing for the data interchange formats for finger minutia data – national standards..
30/DISCT02 Conformance Testing for the data interchange formats for finger minutia data – international standards.

30/DISCT03 Conformance Testing for the data interchange formats for finger pattern spectral data – national standards..
30/DISCT04 Conformance Testing for the data interchange formats for finger pattern spectral data – international standards.
30/DISCT05 Conformance Testing for the data interchange formats for finger image data – national standards.
30/DISCT06 Conformance Testing for the data interchange formats for finger image data – international standards.
30/DISCT07 Conformance Testing for the data interchange formats for face recognition image data – national standards.
30/DISCT08 Conformance Testing for the data interchange formats for face image data – international standards.
30/DISCT09 Conformance Testing for the data interchange formats for iris image data – international standards.
30/DISCT10 Conformance Testing for the data interchange formats for signature/sign time series data – international standards.
30/DISCT11 Conformance Testing for the data interchange formats for finger pattern skeletal data – international standards.
30/DISCT12 Conformance Testing for the data interchange formats for vascular image data – international standards.
30/DISCT13 Conformance Testing for the data interchange formats for hand geometry silhouette data – international standards.
30/DISCT14 Conformance Testing for the data interchange formats for signature/sign processed dynamic data – international standards.
30/DISCT15 Conformance Testing for the speech data interchange formats for speaker recognition – international standards.
30/DISCT16 Conformance Testing for the data interchange formats for DNA data – international standards.

NOTE 1 Test methods 30/DISCT01 through 30/DISCT/16 address only testing of the Biometric Data Interchange Records (BDIR) requirements as defined in INCITS 423.1, Level 1 and Level 2, and both types: A and B.

A.2.2.5 Test Methods for the Scenario Testing – Human crew (lab) (30/ST) Scope of Accreditation

The minimum required expertise necessary to perform any type of scenario testing is described as "*Scenario Testing (30/ST)*" scope of accreditation and is not available as a stand-alone. This scope **shall** be associated with either "*System Level Testing (30/SLT)*" or "*Biometric Sample Collection Testing (30/BSCT)*" scopes.

A.2.2.6 Test Methods for the System Level Testing (30/SLT) Scope of Accreditation

The minimum expertise required to perform any performance testing for scenario type testing is described as *"System-Level Testing (30/SLT),"* and is not available as a stand-alone scope of accreditation. This scope **shall** be associated with either *"Conformance to Performance Specifications Testing (30/CPST)"*, *"Graded Performance Testing (30/GPT),"* or *"Pure Performance Testing (30/PPT)"* scopes of accreditation.

A.2.2.7 Test Methods for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

30/CPST01 Performance Test Methods for Qualifying to TSA Airport QPL Requirements.

NOTE 1 The test method listed above is one example of testing to performance specification. In this case the test method refers to the TSA specifications.

A.2.2.8 Test Methods for the Graded Performance Testing (30/GPT)) Scope of Accreditation

30/GPT01 Performance Test Methods for Grading Biometrics System Performance

A.2.2.9 Test Methods for the Pure Performance Testing (30/PPT)) Scope of Accreditation

30/PPT01 [TBD]

A.2.2.10 Test Methods for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

30/BSCT01 [TBD]

A.2.2.11 Test Methods for the Interoperability Testing (30/IT) Scope of Accreditation

30/IT01 [TBD]

A.2.2.12 Test Methods for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

30/SIT01 [TBD]

A.2.2.13 Test Methods for the Modality-Specific Template/Matcher Interoperability (30/MTIT) Scope of Accreditation

30/MTIT01 [TBD]

A.2.2.14 Test Methods for the Technology Testing (30/TT) Scope of Accreditation

The Technology Testing is concerned only with the offline use of stored (i.e. previously captured) biometric samples, and not with the interaction of human subjects with a biometric sensor.

30/TT01 [TBD]

A.2.2.15 Test Methods for the Modality-Specific Matcher Algorithm Performance testing (30/MMAPT)) Scope of Accreditation

30/MMAPT01 [TBD]

A.2.2.16 Test Methods for the Sensors Interoperability Testing (30/STT) Scope of Accreditation

30/SIT01 [TBD]

A.2.2.17 Test Methods for the Sensor Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation

30/SIQAT01 [TBD]

A.2.2.18 Test Methods for the Biometric Image Segmentation Testing (30/TSEG) Scope of Accreditation

30/BIST01 [TBD]

A.2.2.19 Test Methods for the Data Compression Software Testing (30/DCST) Scope of Accreditation

30/TDCST01 [TBD]

A.2.2.20 Test Methods for the Operational Testing (30/OT) Scope of Accreditation

30/OT01 [TBD]

A.2.2.21 Test Methods for the Usability Testing (30/UT) Scope of Accreditation

30/UT01 [TBD]

A.2.3 Additional references

A.2.3.1 Additional References for the Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional references for the Biometrics Testing and Analysis (30/BTA), other than the ones specified in Clause 1.4 of this handbook.

A.2.3.2 Additional References for the Conformance Testing (30/CT) Scope of Accreditation

There are no additional references for the Conformance Testing (30/CT), other than the ones specified in Clause 1.4 of this handbook.

A.2.3.3 Additional References for the Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

National standards

— INCITS 429:2008, *Information Technology - Conformance Testing Methodology for ANSI INCITS 358-2002, BioAPI Specification.* [This standard specifies the methodology and test assertions for

testing conformance of Biometric Service Providers (BSPs) to the BioAPI Specification] – draft, http://www.incits.org.

— ANSI INCITS 358-2002, BioAPI Specification, version 1.1, 13 February 2002. http://webstore.ansi.org/.

— INCITS project 1853-D, Conformance Testing Methodology for Common Biometric Exchange Formats Framework (CBEFF) Data Structures Specified in INCITS 398-2008, under development, http://www.incits.org/.

— ANSI/INCITS 398-2008, *Information technology – Common Biometric Exchange Formats Framework (CBEFF)*, http://webstore.ansi.org/.

International standards

— ISO/IEC 24709-1:2007, Information Technology – BioAPI Conformance Testing - Part 1: Methods and Procedures.

— ISO/IEC 24709-2:2007, Information Technology – BioAPI Conformance Testing - Part 2: Test Assertions for Biometric.

— 1.37.24709.3, Information Technology – BioAPI Conformance Testing - Part 3: Test Assertions for BioAPI Frameworks, under development.

— 1.37.24709.4, Information Technology – BioAPI Conformance Testing - Part 4: Test Assertions for Biometric Applocations, under development.

— ISO/IEC 19784-1:2006, Information Technology – BioAPI - Biometric Application Programming Interface – Part 1: BioAPI Specification.

— ISO/IEC 19785-1:2006, Information Technology – Common Biometric Exchange Formats Framework (CBEFF) – Part 1: Data Element Specification.

— ISO/IEC 19785-2:2006, Information Technology – Common Biometric Exchange Formats Framework (CBEFF) – Part 2: Procedures for the Operation of the Biometrics Registration Authority.

— ISO/IEC 19785-3:2007, Information Technology – Common Biometric Exchange Formats Framework (CBEFF) – Part 3: Patron Format Specifications.

— 1.37.19785.4, Information Technology – Common Biometric Exchange Formats Framework (CBEFF) – Part 4: Security Block Format Specifications, under development.

A.2.3.4 Additional References for the Data Interchange Standards Conformance (30/DISC) Scope of Accreditation

National standards

— INCITS 423.1: Information Technology - Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards - Part 1: Generalized Conformance Testing Methodology, Jan 2008.

— INCITS 423.2: Information Technology - Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards - Part 2: Conformance Testing Methodology for INCITS 378-2004, Finger Minutiae Format for Data Interchange, July 2007.

— ANSI INCITS 378-2004, *Information Technology – Finger Minutiae Format for Data Interchange*, http://webstore.ansi.org/.

— INCITS 423.3: Information Technology - Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards - Part 3: Conformance Testing Methodology for INCITS 377-2004, Finger Pattern Data Interchange Format, under development.

— ANSI INCITS 377-2004, *Information Technology – Finger Pattern Based Interchange Format*, http://webstore.ansi.org/.

— INCITS 423.4: Information Technology - Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards - Part 4: Conformance Testing Methodology for INCITS 381, Finger Image Data Interchange Format, under development

— ANSI INCITS 381-2004: *Information Technology – Finger Image Based Interchange Format*, http://webstore.ansi.org/.

— INCITS 423.5: Information Technology - Conformance Testing Methodology Standard for Biometric Data Interchange Format Standards - Part 5: Conformance Testing Methodology for INCITS 385, Face Recognition Format for Data Interchange, under development

— ANSI INCITS 385-2004: *Information Technology - Face Recognition Format for Data Interchange*, http://webstore.ansi.org/.

International standards

— 1.37.29109.1 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 1: Generalized Conformance Testing Methodology, under development

— 1.37.29109.2 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 2: Finger Minutiae Data, under development

— ISO/IEC 19794–2:2005 *Information technology - Biometric Data Interchange Formats* – Part 2: *Finger Minutiae Data*, http://www.iso.org.

— 1.37.29109.3 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 3: Finger Pattern Spectral Data, under development

— ISO/IEC 19794–3:2006 Information technology - Biometric Data Interchange Formats – Part 3: Finger Pattern Spectral Data, http://www.iso.org.

— 1.37.29109.4 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 4: Finger Image Data, under development

— ISO/IEC 19794–4:2005 *Information technology - Biometric Data Interchange Formats* – Part 4*: Finger Image Data*, http://www.iso.org.

— 1.37.29109.5 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 5: Face Image Data, under development

— ISO/IEC 19794–5:2005 *Information technology - Biometric Data Interchange Formats* – Part 5*: Face Image Data*, http://www.iso.org.

— 1.37.29109.6 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 6: Iris mage Data, under development

— ISO/IEC 19794–6:2005 *Information technology - Biometric Data Interchange Formats* – Part 6*: Iris Image Data*, http://www.iso.org.

— 1.37.29109.7 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 7: Signature/Sign Time Series Data, under development

— ISO/IEC 19794–7:2006 Information technology - Biometric Data Interchange Formats – Part 7: Sign/Signature Behavioral Data, http://www.iso.org.

— 1.37.29109.8 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 8: Finger Pattern Skeletal Data, under development

— ISO/IEC 19794–8:2006 Information technology - Biometric Data Interchange Formats – Part 8: Finger Pattern Skeletal Data, http://www.iso.org.

— 1.37.29109.9 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 9: Vascular Image Data, under development

— ISO/IEC 19794–9:2007 Information technology - Biometric Data Interchange Formats – Part 9: Vascular Biometric Image Data, http://www.iso.org.

— 1.37.29109.10 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 10: Hand Geometry Silhouette Data, under development

— ISO/IEC 19794–10:2005 Information technology - Biometric Data Interchange Formats – Part 10: Hand Geometry Silhouette Data.

— 1.37.29109.11 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 11: Signature/Sign Processed Dynamic Data, under development

— 1.37.19794–11 Information technology - Biometric Data Interchange Formats – Part 11: Signature/Sign Processed Dynamic Data, under development

— 1.37.29109.13 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 13: Speech Data Interchange Format for Speaker Recognition, under development

— 1.37.19794–13 Information technology - Biometric Data Interchange Formats – Part 13: Voice Data, under development

— 1.37.29109.14 - Information Technology – Conformance Testing Methodology for Biometric Data Interchange Records as defined in ISO/IEC 19794 Biometric Data Interchange Format Standard – Part 1: Generalized Conformance Testing Methodology, under development

— 1.37.19794–14 Information technology - Biometric Data Interchange Formats – Part 14: DNA Data, under development

A.2.3.5 Additional References for the Scenario Testing – Human crew (lab) (30/ST) Scope of Accreditation

— ANSI INCITS 409.1-2005: *Information Technology - Biometric Performance Testing and Reporting* – Part 1*: Principles and Framework*, http://webstore.ansi.org/.

— ANSI INCITS 409.3-2005: *Information Technology - Biometric Performance Testing and Reporting* – Part 3*: Scenario Testing and Reporting*, http://webstore.ansi.org/.

— ISO/IEC Project 19795-1:2006 *Information Technology - Biometric Performance Testing and Reporting* – Part 1: *Principles and Framewor*k, http://www.iso.org.

— ISO/IEC CD 19795-2:2007 Information Technology - Biometric Performance Testing and Reporting – Part 2: testing Methodologies for Technology and Scenario Evaluation, http://www.iso.org/.

A.2.3.6 Additional References for the System Level Testing (30/SLT) Scope of Accreditation

No additional reference.

A.2.3.7 Additional References for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

— Guidance Package – *Biometrics for Airport Access Control*, 30/ September 2005, Transportation Security Administration, http://www.tsa.gov/assets/pdf/biometrics_guidance.pdf.

National standards

— INCIT Project 1602-5 Information Technology - Biometric Performance Testing and Reporting - Part 5: Framework for Testing and Evaluation of Biometric Systems for Access Control, June 2008, under development.

International standards

— 1.37.19795.5 Information technology – Biometric Performance Testing and Reporting – Part 5: Performance of Biometric Access Control Systems, under development.

A.2.3.8 Additional References for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD]

A.2.3.9 Additional References for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD]

A.2.3.10 Additional References for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD]

A.2.3.11 Additional References for the Sensor Interoperability Testing [ITIRT] (30/SIT) Scope of Accreditation

[TBD]

A.2.3.12 Additional References for the Modality-Specific Template/Matcher Interoperability (30/MTIT) Scope of Accreditation

[TBD]

A.2.3.13 Additional References for the Technology Testing (30/TT) Scope of Accreditation

National standards

— ANSI INCITS 409.2-2005: Information Technology - Biometric Performance Testing and Reporting – Part 2: Technology Testing and Reporting, http://webstore.ansi.org/.

International standards

— ISO/IEC Project 19795-1:2006, *Information Technology - Biometric Performance Testing and Reporting* – Part 1: *Principles and Framework*, http://www.iso.org.

— ISO/IEC 19795-2:2007 Information Technology - Biometric Performance Testing and Reporting – Part 2: Testing Methodologies for Technology and Scenario Evaluation, particularly clause 6, (http://www.iso.org/.

A.2.3.14 Additional References for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT)) Scope of Accreditation

[TBD]

A.2.3.15 Additional References for the Sensors Technology Testing (30/STT) Scope of Accreditation

[TBD]

A.2.3.16 Additional References for the Image Quality Algorithm Testing (30/IQAT) Scope of Accreditation

[TBD]

A.2.3.17 Additional References for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.2.3.18 Additional References for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.2.3.19 Additional References for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.2.3.20 Additional References for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

A.2.4 Additional terms and definitions

A.2.4.1

Data Interchange Conformance Testing - Level 1 testing
Conformance testing methodology that checks in a biometric data structure field by field and byte by byte conformance with the specification of the biometric data structure as specified in the base standard, both in terms of fields included and the ranges of the values in those fields. This type of testing tests syntactic requirements of the base standard.

Data Interchange Conformance Testing - Level 2 testing
Conformance testing methodology that tests the internal consistency of a biometric data structure under test, relating values from one part or field of the data structure to values from other parts or fields of the data structure. This type of testing tests syntactic requirements of the base standard.

A.3 Additional Accreditation Process Requirements

Requirements provided in this clause are subject to change at any time. The Biometrics Products Testing website < http://ts.nist.gov/Standards/Accreditation/BIO-LAP.cfm > will provide all requirements that could not be documented in this handbook and all updates for the existing requirements.

A.3.1 Additional Initial Accreditation Requirements

In order for a NVLAP laboratory to apply for any Biometrics LAP scope of accreditation, the laboratory **shall** firstly satisfy the Biometric Testing and Analysis (30/BTA) scope of accreditation requirements. Even though the 30/BTA scope is not a stand alone scope for which laboratories can apply for accreditation, the scope is a prerequisite for all other scopes of accreditation offered under Biometrics LAP.

A.3.1.1 Additional initial accreditation requirements for Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.1 of this document.

A.3.1.2 Additional initial accreditation requirements for Conformance Testing (30/CT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.1 of this document.

A.3.1.3 Additional initial accreditation requirements for Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.1 of this document.

A.3.1.4 Additional initial accreditation requirements for Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.1 of this document.

A.3.1.5 Additional initial accreditation requirements for the Scenario Testing –Human Crew (30/STT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.1 of this document.

A.3.1.6 Additional initial accreditation requirements for the System Level Testing (30/SLT) Scope of Accreditation

A laboratory applying for 30/SLT scope of accreditation or to any scope of accreditation that requires 30/SLT as a prerequisite **shall** owe or rent a physical facility with adequate floor space for the size of the required human crew and with adequate physical security commensurable with the collected and/or tested data sensitivity and with the hosted equipment.

A.3.1.7 Additional initial accreditation requirements for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

A laboratory **shall** have the capability to execute the statistical analysis methodologies identified by conformity assessment procurement, to determine the confidence intervals to be used in establishing the Pass/Fail recommendation for each specified test metrics.

A.3.1.8 Additional initial accreditation requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation

A.3.1.8.1 A laboratory applying for 30/GPT scope of accreditation **shall** have the staff experienced or train in, and possess tools needed to perform, custom integration of the biometric devices to facilitate automated capture of biometric matching similarity scores. This data (while not absolutely required) should be collected whenever possible to achieve the maximum benefit of the testing results.

A.3.1.8.2 A laboratory **shall** have the capability to execute the statistical analysis methodologies specified to determine the confidence intervals to be used in establishing the grading level determination for each specified test metrics.

A.3.1.9 Additional initial accreditation requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD].

A.3.1.10 Additional initial accreditation requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD].

A.3.1.11 Additional initial accreditation requirements for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD].

A.3.1.12 Additional initial accreditation requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

[TBD].

A.3.1.13 Additional initial accreditation requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation

[TBD].

A.3.1.14 Additional initial accreditation requirements for the Technology Testing (30/TT) Scope of Accreditation

[TBD].

A.3.1.15 Additional initial accreditation requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation

[TBD]

A.3.1.16 Additional initial accreditation requirements for the Sensors Technology Testing (30/STT) Scope of Accreditation

[TBD]

A.3.1.17 Additional initial accreditation requirements for the Image Quality Algorithm Testing (30/SIQET) Scope of Accreditation

[TBD]

A.3.1.18 Additional initial accreditation requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.3.1.19 Additional initial accreditation requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.3.1.20 Additional initial accreditation requirements for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.3.1.21 Additional initial accreditation requirements for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

A.3.2 Additional activities prior to initial on-site assessment

There are no additional requirements other than those provided in clause 3.2 of this document

A.3.3 Additional on-site assessment requirements

There are no additional requirements other than those provided in clause 3.3 of this document.

A.3.4 Additional Proficiency Testing Requirements

A.3.4.1 Additional proficiency testing requirements for biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.2 Additional proficiency testing requirements for Conformance Testing (30/CT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.3 Additional proficiency testing requirements for Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.4 Additional proficiency testing requirements for Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.5 Additional proficiency testing requirements for the Scenario Testing –Human Crew (30/STT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.6 Additional proficiency testing requirements for the System Level Testing (30/SLT) Scope of Accreditation

There are no additional requirements other than those provided in clause 3.4 of this document.

A.3.4.7 Additional proficiency testing requirements for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

A laboratory **shall** demonstrate their capability and proficiency in performing the specific statistical analysis to be applied to the test results to determine confidence intervals for the measured data, and subsequently the Pass/Fail decision relative to the Performance Specifications. This proficiency **shall** be tested by executing the statistical analysis methodology, programmed into the laboratory's data analysis processing system.

A.3.4.8 Additional proficiency testing requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation

A laboratory **shall** demonstrate their capability and proficiency in performing the specific statistical analysis to be applied to the test results to determine confidence intervals for the measured data, and

subsequently the grade level determination relative to the grading criteria. This proficiency **shall** be tested by executing the statistical analysis methodology, programmed into the laboratory's data analysis processing system. The sample raw test data **shall** be available as:

A.3.4.9 Additional proficiency testing requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD]

A.3.4.10 Additional proficiency testing requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD]

A.3.4.11 Additional proficiency testing requirements for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD]

A.3.4.12 Additional proficiency testing requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

[TBD]

A.3.4.13 Additional proficiency testing requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation

[TBD]

A.3.4.14 Additional proficiency testing requirements for the Technology Testing (30/TT) Scope of Accreditation

[TBD]

A.3.4.15 Additional proficiency testing requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation

[TBD]

A.3.4.16 Additional proficiency testing requirements for the Sensors Technology Testing (30/SIT) Scope of Accreditation

[TBD]

A.3.4.17 Additional proficiency testing requirements for the Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation

[TBD]

A.3.4.18 Additional proficiency testing requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.3.4.19 Additional proficiency testing requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.3.4.20 Additional proficiency testing requirements for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.3.4.21 Additional proficiency testing requirements for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

A.4 Additional management requirements for accreditation

There are no additional requirements other than those provided in clause 4 of this document.

A.5 Additional technical requirements for accreditation

A.5.1 General

The laboratory's key technical personnel (see Clause 5.2.2) **shall** be trained or have three years of direct work experience, prior to accreditation, in the area of biometrics products testing best practice, biometric technologies and events relevant to practicing privacy protection, and possess basic knowledge of:

- biometric matching and template generation algorithms and uses;
- biometric testing harnesses and implementations;
- physical security;
- protection of personally identifiable information;
- identification and authentication technologies and techniques;
- conformance requirements.

A.5.2 Additional personnel requirements

A.5.2.1 Additional personnel requirements for Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.2 of this document.

A.5.2.2 Additional personnel requirements for Conformance Testing (30/CT) Scope of Accreditation

The laboratory's key technical personnel **shall** have experience or be trained prior to accreditation in the area of:

a) biometrics standards conformance testing listed in this document;
b) knowledge of eXtensible Markup Language (XML);
c) familiarity with the NIST/ITL Reference Implementation (RI);
d) familiarity with the NIST/ITL Conformance Testing Suite (CTS) – installation, test assertions, tests execution and test reports.
e) Familiarity with the test methodology standards and/or DTRs.

A.5.2.3 Additional personnel requirements for Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

A laboratory applying for the 30/TISCT scope of accreditation **shall** demonstrate competency in installing and running the latest version of the Conformance Testing Suite for the biometric technical interface provided by NIST/ITL or in any other testing suite indicated by the CAC through NVLAP.

A.5.2.4 Additional personnel requirements for Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

A laboratory applying for the 30/TISCT scope of accreditation **shall** demonstrate competency in installing and running the latest version of the Conformance Testing Suite for the biometric data interchange formats provided by NIST/ITL or in any other testing suite indicated by the CAC through NVLAP.

A.5.2.5 Additional personnel requirements for the Scenario Testing –Human Crew (30/ST) Scope of Accreditation

The laboratory **shall** have personnel with experience training, prior to accreditation, in the areas of:

- **a)** biometric device installation, integration and operation;
- **b)** biometric testing detailed product-specific procedures development;
- **c)** test crew management (recruitment, authentication, scheduling, training, anonymity, compensation);
- **d)** control of crew demographic distribution;
- **e)** Personal Identifier Information (PII) data protection and management;
- **f)** data review, reduction and analysis.

A.5.2.6 Additional personnel requirements for the System Level Testing (30/SLT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.2 of this document.

A.5.2.7 Additional personnel requirements for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

In addition to the requirements set forth by the prerequisite scopes of accreditation, the laboratory personnel **shall** have experience or be trained prior to accreditation in the areas of:

a) statistical data analysis techniques related to Pass/Fail recommendation.

A.5.2.8 Additional personnel requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation

In addition to the requirements set forth by the prerequisite scopes of accreditation, the laboratory personnel **shall** have experience or be trained prior to accreditation in the areas of:

a) statistical data analysis techniques relate to grade level recommendation.

A.5.2.9 Additional personnel requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD]

A.5.2.10 Additional personnel requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD]

A.5.2.11 Additional personnel for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD]

A.5.2.12 Additional personnel requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.2.13 Additional personnel requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation

[TBD]

A.5.2.14 Additional personnel requirements for the Technology Testing (30/TT) Scope of Accreditation

[TBD]

A.5.2.15 Additional personnel requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation

[TBD]

A.5.2.16 Additional personnel requirements for the Sensors Technology Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.2.17 Additional personnel requirements for the Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation

[TBD]

A.5.2.18 Additional personnel requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.5.2.19 Additional personnel requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.5.2.20 Additional personnel requirements for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.5.2.21 Additional personnel requirements for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

A.5.3 Additional Accommodation and Environmental Conditions

There are no additional requirements other than those provided in clause 5.3 of this document.

A.5.4 Additional Test and Calibration Methods and Method Validation

There are no additional requirements other than those provided in clause 5.4 of this document.

A.5.5 Additional Equipment Requirements

A.5.5.1 Additional equipment requirements for Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 of this document.

A.5.5.2 Additional equipment requirements for Conformance Testing (30/CT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 of this document.

A.5.5.3 Additional equipment requirements for Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 of this document.

A.5.5.4 Additional equipment requirements for Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 of this document.

A.5.5.5 Additional equipment requirements for the Scenario Testing –Human Crew (30/ST) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 of this document.

A.5.5.6 Additional equipment requirements for the System Level Testing (30/SLT) Scope of Accreditation

The laboratory applying for accreditation for the 30/SLT scope **shall** also possess the following equipment:

- **a)** network components (switches, routers, cables, etc.) to reconfigure computing and network resources;
- **b)** hardware components (brackets, shelves, etc) to reconfigure biometric device mounting.
- **c)** dedicated enrollment and verification sub-system (possibly provided by the Conformity Assessment Council or the vendors of the system under test).

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A.5.5.7 Additional equipment requirements for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 and A.5.5 of this document

A.5.5.8 Additional equipment requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.5 and A.5.5 of this document.

A.5.5.9 Additional equipment requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD]

A.5.5.10 Additional equipment requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD]

A.5.5.11 Additional equipment requirements for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD]

A.5.5.12 Additional equipment requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.5.13 Additional equipment requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation

[TBD]

A.5.5.14 Additional equipment requirements for the Technology Testing (30/TT) Scope of Accreditation

[TBD]

A.5.5.15 Additional equipment requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation

[TBD]

A.5.5.16 Additional equipment requirements for the Sensors Technology Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.5.17 Additional equipment requirements for the Sensor Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation

[TBD]

A.5.5.18 Additional equipment requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.5.5.19 Additional equipment requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.5.5.20 Additional equipment requirements for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.5.5.21 Additional equipment requirements for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

A.5.6 Additional measurement traceability

A.5.6.1 Additional general requirements

There are no additional requirements other than those provided in clause 5.6.1 of this document.

A.5.6.2 Additional calibration requirements

There are no additional requirements other than those provided in clause 5.6.2 of this document.

A.5.6.3 Additional testing requirements

A.5.6.3.1 *Additional testing requirements for the Biometrics Testing and Analysis (30/BTA) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.2 *Additional testing requirements for the Conformance Testing (30/CT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.3 *Additional testing requirements for the Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.4 *Additional testing requirements for the Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.5 *Additional testing requirements for the Scenario Testing (30/ST) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.6 *Additional testing requirements for the System Level Testing (30/SLT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.7 *Additional testing requirements for the Conformance to Performance Specifications Testing (30/CT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.8 *Additional testing requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation*

There are no additional requirements other than those provided in clause 5.6.3 of this document.

A.5.6.3.9 ***Additional testing requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation***

[TBD]

A.5.6.3.10 ***Additional testing requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation***

[TBD]

A.5.6.3.11 ***Additional testing requirements for the Interoperability Testing (30/IT) Scope of Accreditation***

[TBD]

A.5.6.3.12 ***Additional testing requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation***

[TBD]

A.5.6.3.13 ***Additional testing requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation***

[TBD]

A.5.6.3.14 ***Additional testing requirements for the Technology Testing (30/CT) Scope of Accreditation***

[TBD]

A.5.6.3.15 ***Additional testing requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation***

[TBD]

A.5.6.3.16 ***Additional testing requirements for the Sensors Technology Testing (30/SIT) Scope of Accreditation***

[TBD]

A.5.6.3.17 ***Additional testing requirements for the Sensor Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation***

[TBD]

A.5.6.3.18 ***Additional testing requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation***

[TBD]

A.5.6.3.19 ***Additional testing requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation***

[TBD]

A.5.6.3.20 ***Additional testing requirements for the Operational Testing (30/OT) Scope of Accreditation***

[TBD]

A.5.6.3.21 ***Additional testing requirements for the Usability Testing (30/UT) Scope of Accreditation***

[TBD]

A.5.7 Additional Sampling Requirements

A.5.7.1 Additional sampling requirements for Biometrics Testing and Analysis (30/BTA) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.2 Additional sampling requirements for Conformance Testing (30/CT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.3 Additional sampling requirements for Technical Interface Standards Conformance Testing (30/TISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.4 Additional sampling requirements for Data Interchange Standards Conformance Testing (30/DISCT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.5 Additional sampling requirements for the Scenario Testing –Human Crew (30/ST) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.6 Additional sampling requirements for the System Level Testing (30/SLT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.7 Additional sampling requirements for the Conformance to Performance Specifications Testing (30/CPST) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.8 Additional sampling requirements for the Graded Performance Testing (30/GPT) Scope of Accreditation

There are no additional requirements other than those provided in clause 5.7 of this document.

A.5.7.9 Additional sampling requirements for the Pure Performance Testing (30/PPT) Scope of Accreditation

[TBD]

A.5.7.10 Additional sampling requirements for the Biometric Sample Collection Testing (30/BSCT) Scope of Accreditation

[TBD]

A.5.7.11 Additional sampling requirements for the Interoperability Testing (30/IT) Scope of Accreditation

[TBD]

A.5.7.12 Additional sampling requirements for the Sensor Interoperability Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.7.13 Additional sampling requirements for the Modality-Specific Template/Matcher Interoperability Testing (30/MTIT) Scope of Accreditation

[TBD]

A.5.7.14 Additional sampling requirements for the Technology Testing (30/TT) Scope of Accreditation

[TBD]

A.5.7.15 Additional sampling requirements for the Modality-Specific Matcher Algorithm Performance Testing (30/MMAPT) Scope of Accreditation

[TBD]

A.5.7.16 Additional sampling requirements for the Sensors Technology Testing (30/SIT) Scope of Accreditation

[TBD]

A.5.7.17 Additional sampling requirements for the Sensor Image Quality Algorithm Testing (30/SIQAT) Scope of Accreditation

[TBD]

A.5.7.18 Additional sampling requirements for the Biometric Image Segmentation Testing (30/BIST) Scope of Accreditation

[TBD]

A.5.7.19 Additional sampling requirements for the Data Compression Software Testing (30/DCST) Scope of Accreditation

[TBD]

A.5.7.20 Additional sampling requirements for the Operational Testing (30/OT) Scope of Accreditation

[TBD]

A.5.7.21 Additional sampling requirements for the Usability Testing (30/UT) Scope of Accreditation

[TBD]

Annex B

(informative)

The following acronyms and abbreviations are used throughout this handbook:

ANSI: American National Standards Institute

BSP: Biometric Service Providers

FIPS: Federal Information Processing Standard

ICAO: International Civil Aviation Organization

IG: Implementation Guidance

INCITS: InterNational Committee for Information Technology Standards

ISO: International Organization for Standardization

ITL: Information Technology Laboratory

LAP: Laboratory Accreditation Program

NIST: National Institute of Standards and Technology

QPL: Qualified Product List

RTCA: Radio Technical Commission for Aeronautics

RTIC: Registered Traveler Interoperability Consortium

TSA: Transportation Security Administration

TWIC: Transportation Workers Identification Credential