

M1/05-0392

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**Biometric Performance Testing and Reporting  
Part 6: Performance and Interoperability Testing of Implementations claiming  
conformance to Biometric Data Interchange Format Standards**

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## **Project Proposal**

**ANSI/INCITS 1602D-6** Biometric Performance Testing and Reporting  
Part 6: Performance and Interoperability Testing of Implementations Claiming Conformance to Biometric Data Interchange Format Standards

# **1 Source of the Proposed Project**

## **1.1 Title**

Performance and Interoperability Testing of Implementations Claiming Conformance to Biometric Data Interchange Format Standards

## **1.2 Date Submitted**

June 9, 2005

## **1.3 Proposer**

INCITS Technical Committee M1

# **2 Process Description for the Proposed Project**

## **2.1 Project Type**

D - This is a standard development project.

## **2.2 Type of Document**

The project is expected to result in an INCITS standard.

## **2.3 Definitions of Concepts and Special Terms**

M1.3 has developed a suite of data interchange formats intended to allow interoperable exchange of biometric sample data. There are three relevant concepts related to the testing of those formats:

1. *Conformance*: Assessment of the conformity of samples to the respective underlying base format standard.
2. *Performance*: Measurement of the absolute verification or identification accuracy associated with the use of data formatted to be conformant with the base standard.
3. *Interoperability*: Measurement of the verification and identification accuracy associated with the matching by system C of conformant samples produced by systems A and B.

## **2.4 Expected Relationship with Approved Reference Models, Architectures, etc.**

The tests will embed principles and testing methodologies currently being formulated in INCITS project 1602D Parts 1, 2 and 3.

## **2.5 Recommended INCITS Development Technical Committee**

INCITS Technical Committee M1 – Biometrics

## **2.6 Anticipated Frequency and Duration of Meetings**

It is anticipated that this project would require one-day meetings approximately four times annually.

## **2.7 Target Data for Initial Public Review**

It is estimated that the draft document would be ready for submission to INCITS for Milestone 4 processing in October 2005.

## **2.8 Estimated Useful Life of Standard**

It is anticipated that this standard may super has an estimated life of 5-years.

# **3 Business Case for Developing the Proposed Standard**

## **3.1 Description**

It generally remains the case that standards addressing the testing of conformance, interoperability and performance of biometric interchange data do not currently exist. There is consensus that there is a need for such standards: specifically the M1.3 in Miami in February 2005 posited, in document M1/05-0211, that together, performance and conformance tests would constitute a complete test of that of a base interchange format standard.

The proposed standard will define offline and online tests in which sample data is acquired, processed exchanged, and matched by several vendors. The standard will establish protocols and metrics for the assessment of performance and interoperability. The standard will not specifically address conformance, standards for which are being initiated separately.

## **3.2 Existing Practice and the Need for a Standard**

Given the novelty of the base data interchange standards there is little existing practice in the biometrics community. However two tests have been completed: Firstly the Dutch Biometric Test Document trial used both face and fingerprints; second is the ILO's fingerprint minutia templates in support of a seafarers credential. Finally NIST has embarked on a large scale test of the INCITS 378 finger minutia format.

The proposed standard is needed to simultaneously:

1. measure the performance available in applications that require interoperability.
2. assess whether the base standards are capable of offering performance comparable with existing closed formats.

## **3.3 Implementation Impacts of the Proposed Standard**

### **3.3.1 Development Costs**

Technical editor labor is expected to total about two months of a staff-year.

### **3.3.2 Impact on Existing or Potential Markets**

Given the emergence of large scale applications that are not likely to be sole-sourced, the standard is needed to support assessments of the performance available from interoperable data. The standard will formalize the concepts of interoperability and sufficiency relative to proprietary formats, and will do so in the context of various exchange paradigms (e.g two-vendor, or three-vendor applications).

The standard will treat, where possible, the data formats generically and should therefore have applicability to kinds of biometric data that have thus far been neither commercialized nor standardized.

### **3.3.3 Costs and Methods for Conformity Assessment**

The proposed standard should provide a stronger basis for the development of uniform, internationally recognized, interoperability tests. It may be able to include conformance test assertions and axioms. Conformance otherwise should be assessed using standardized test assertions and vendor declarations of correct behavior. Therefore the cost of conformity assessment is not known at this time.

### **3.3.4 Return on Investment**

Although, there is no known data on which to make a ROI estimate, some large scale applications are in the planning stages. With user populations in the millions these applications are directly dependent by successful interoperability.

## **3.4 Legal Considerations**

### **3.4.1 Patent Assertions**

Determination of patents relevant to this proposed amendment will be dependent upon the selection and specification of options in base standards for use in this application profile.

### **3.4.2 Dissemination of the Standard**

Drafts of this standard will be distributed electronically. There may be distribution constraints as this document reaches different stages of development and processing within INCITS and/or ISO/IEC JTC1.

## **4 Related Standards Activities**

### **4.1 Existing Standards**

Existing base standards, which may be specified in the proposed application profile standard, include:

ANSI/INCITS 1602D-1 – Biometric Performance Testing and Reporting – Part 1: Framework

ANSI/INCITS 1602D-2 – Biometric Performance Testing and Reporting – Part 2: Technology Testing

ANSI/INCITS 1602D-3 – Biometric Performance Testing and Reporting – Part 2: Scenario Testing

ISO/IEC CD 19795-4 – Biometric Performance Testing and Reporting - Part 4: Interoperability Testing

### **4.2 Related Standards Activity**

Related standards activity includes the INCITS Technical Committees M1.3 work on conformance testing.

### **4.3 Recommendations for Close Liaison**

SC37

## **5 Units of Measurement used in the Standard**

Indicate units of measurement used in the Standard:

- International Systems of Units (SI)
- Inch/Pound
- Both
- Other
- XX Not Measurement Sensitive