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Information technology — Biometric performance testing and reporting —

Part 2: Testing methodologies for technology and scenario evaluation

Technologies de l'information — Essais et rapports de performance biométriques —

Partie 2: Méthodologies d'essai pour l'évaluation des technologies et du scénario

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 19795-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

ISO/IEC 19795 consists of the following parts, under the general title *Information technology — Biometric performance testing and reporting*:

- *Part 1: Principles and framework*
- *Part 2: Testing methodologies for technology and scenario evaluation*

The following parts are under preparation:

- *Part 3: Modality-specific testing* [Technical Report]
- *Part 4: Performance and interoperability testing of data interchange formats*
- *Part 5: Performance of biometric access control systems*

Introduction

This part of ISO/IEC 19795 addresses two specific biometric performance testing methodologies: technology and scenario evaluation. The large majority of biometric tests are of one of these two generic evaluation types. Technology evaluations evaluate enrolment and comparison algorithms by means of previously collected corpuses, while scenario evaluations evaluate sensors and algorithms by processing of samples collected from Test Subjects in real time. The former is intended for generation of large volumes of comparison scores and candidate lists indicative of the fundamental discriminating power of an algorithm. The latter is intended for measurement of performance in modeled environments, inclusive of Test Subject-system interactions.

This part of ISO/IEC 19795 builds on requirements and best practices specified in ISO/IEC 19795-1, which addresses specific philosophies and principles that can be applied over a broad range of test conditions.

This part of ISO/IEC 19795 is meant to provide biometric system developers, deployers and end users with mechanisms for design, execution and reporting of biometric performance tests in a fashion that allows meaningful benchmarking of biometric performance within and across technologies, usage scenarios and environments.

Information technology — Biometric performance testing and reporting —

Part 2: Testing methodologies for technology and scenario evaluation

1 Scope

This part of ISO/IEC 19795 provides requirements and recommendations on data collection, analysis and reporting specific to two primary types of evaluation: technology evaluation and scenario evaluation.

This part of ISO/IEC 19795 specifies requirements in the following areas:

- development and full description of protocols for technology and scenario evaluations;
- execution and reporting of biometric evaluations reflective of the parameters associated with biometric evaluation types.

2 Conformance

A test shall claim conformance to either the technology evaluation or scenario evaluation clauses of this part of ISO/IEC 19795.

The set of clauses to which a scenario test shall conform differs from the set of clauses to which a technology test shall conform. In addition, the set of clauses to which an identification-system test shall conform differs from the set of clauses to which a verification-system test shall conform. To conform to this part of ISO/IEC 19795, an evaluation shall conform to clauses of this part of ISO/IEC 19795 as shown in Table 1.

Table 1 — Conformance for evaluation methodologies and comparison types

Evaluation methodology	Comparison type	Required clauses
Technology or scenario	Identification or verification	Clauses 5 and 8
Technology	Identification	All of Clause 6, except 6.3.3
Technology	Verification	All of Clause 6, except 6.3.4
Scenario	Identification	All of Clause 7, except 7.3.4
Scenario	Verification	All of Clause 7, except 7.3.5

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19795-1, *Information technology — Biometric performance testing and reporting — Part 1: Principles and framework*