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**Information technology — Biometric
performance testing and reporting —
Part 5:
Access control scenario and grading
scheme**

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

*Partie 5: Plan de classement pour évaluation de scénario de contrôle
d'accès*

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Contents

Page

Foreword	v
Introduction.....	vi
1 Scope.....	1
2 Conformance	2
3 Normative references.....	2
4 Terms and definitions	2
5 Definition of testing scenario.....	3
5.1 Overview.....	3
5.2 Relationship of biometric system / subsystem to access control system.....	3
5.3 Evaluation metrics overview	5
5.4 Evaluation approach	5
5.4.1 Tests	5
5.4.2 Universality of the test.....	6
5.4.3 Levels of effort and decision policies	6
5.4.4 Controlled Indoor Environment	6
5.5 Crew characteristics and management.....	7
5.5.1 Crew demographics	7
5.5.2 Crew size	8
5.5.3 Test crew selection	8
5.5.4 Test crew training.....	9
5.5.5 Operator - crew member interaction	9
5.5.6 Habituation	9
5.6 Privacy.....	9
5.6.1 General	9
5.6.2 Crew identity protection	9
5.6.3 Data protection	10
5.6.4 Proprietary information.....	10
6 Testing approach and conduct.....	10
6.1 Planning	10
6.1.1 General	10
6.1.2 Test objectives.....	10
6.1.3 Inputs to and outputs from the test process	10
6.1.4 Concept of operations	10
6.1.5 Adherence to native system operations	11
6.2 General test approach.....	11
6.2.1 General	11
6.2.2 Pre-test activities.....	12
6.2.3 System operability verification	14
6.2.4 Data collection	14
6.2.5 Problem reporting and tracking.....	15
6.2.6 Post-test briefing	16
6.3 Testing methodology	16
6.3.1 Introduction.....	16
6.3.2 Enrolment transactions and results generation	17
6.3.3 Verification attempts, transactions, and results generation.....	17
6.3.4 Enrolment and verification temporal separation	18
6.3.5 Impostor tests.....	20
6.4 Errors and exception cases	20
6.5 Incremental performance evaluations.....	21

This is a preview of "ISO/IEC 19795-5:2011". [Click here to purchase the full version from the ANSI store.](#)

7	Grading and reporting	21
7.1	Grading	21
7.1.1	Data analysis	21
7.1.2	Using statistical analysis methods	21
7.1.3	Performance measures	21
7.1.4	Grading of matching performance illustration	25
7.1.5	Uses (of grading)	25
7.2	Documentation requirements and control	26
7.2.1	General	26
7.2.2	Test control	26
7.3	Reporting performance results	27
7.3.1	Reporting requirements	27
7.3.2	Report structure	28
Annex A	(informative) Grading information	29
A.1	Equivalence of tests	29
A.2	Comparison of test results	29
A.3	Grading values for enrolment performance	29
A.4	Grading values for matching performance	30
A.5	Grading illustration shown in Figure A.1	30
A.6	Grading values for transaction time performance	31
A.7	Defining system requirements as in Table 7	31
Annex B	(normative) Statistical methods for estimation of confidence bounds graded test metrics	33
B.1	Correlated binary method	33
B.2	Beta distribution method	34
B.3	Z-statistic	35
	Bibliography	36

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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 19795-5 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*
- *Part 3: Modality-specific testing [Technical report]*
- *Part 4: Interoperability performance testing*
- *Part 5: Access control scenario and grading scheme*
- *Part 6: Testing methodologies for operational evaluation*
- *Part 7: Testing of on-card biometric comparison algorithms*

Introduction

This part of ISO/IEC 19795 is concerned solely with the scientific “technical performance testing” of biometric systems and subsystems to be used for access control. Technical performance testing seeks to determine error rates and transaction times with the goal of understanding and predicting the real-world error and transaction times of a biometric system. The error rates include false accept rate, and false reject rate, as well as failure to enrol (FTE) and failure to acquire (FTA) rates across the test population. These measures are generally applicable to all access control systems that contain a biometric verification subsystem.

This part of ISO/IEC 19795 defines a testing framework with the following fundamental aspects.

- This part of ISO/IEC 19795 was conceived to be a framework for a general- or multi-purpose test: “one size fits many (but not all)”. The focus is limited to access control applications.
- The framework is suitable as both a requirements statement and an evaluation report.
- The general-purpose nature of this part of ISO/IEC 19795 is centred on the common access control application requirements, and acknowledges the fact that this framework will not be suitable for specialized applications (very high levels of protection, specialized user populations like the elderly, students, etc.). Specialized applications will warrant specialized testing processes.
- The perceived benefit of the general- or multi-purpose test is economy. The supplier can submit to one testing process, and many potential customers can utilize the results, interpreting the suitability of the device (based on the results) for their application.

This testing framework assigns grades representing the tested level of performance, and these grades include a statistical confidence taking the conservative approach, that is, the performance of the system is at least as good as the grade indicated (at the 90% confidence level). Using the grading scheme to specify a required performance level of a system needs to take into account this conservative approach.

It is acknowledged that technical performance testing is only one form of biometric testing. Other types of testing not considered in this part of ISO/IEC 19795 include the following:

- reliability, availability and maintainability;
- security, including vulnerability;
- human factors, including user acceptance;
- environmental;
- safety;
- cost/benefit;
- privacy regulation compliance.

Methods and philosophies for these other types of tests are currently being considered internationally by a broad range of groups.

The purpose of this part of ISO/IEC 19795 is to capture the current understanding by the biometrics community of requirements and best scientific practices for conducting performance testing towards the end of providing consistent, structured evaluations of biometric systems intended for use in access control applications. The framework defined in this part of ISO/IEC 19795 has utility as a method for defining user requirements, for specifying the extent of performance evaluation, for conducting and for reporting.