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Information technology — Biometric performance testing and reporting — Part 1: Principles and framework

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

Partie 1: Principes et canevas



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Contents

	Page
Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	5
5 Conformance	6
6 General biometric system	6
6.1 Conceptual representation of general biometric system.....	6
6.2 Conceptual components of a general biometric system.....	7
6.2.1 Data capture subsystem.....	7
6.2.2 Transmission subsystem.....	7
6.2.3 Signal processing subsystem.....	7
6.2.4 Data storage subsystem.....	8
6.2.5 Comparison subsystem.....	8
6.2.6 Decision subsystem.....	8
6.2.7 Administration subsystem.....	9
6.2.8 Interface to external application.....	9
6.3 Functions of general biometric system.....	9
6.3.1 Enrolment.....	9
6.3.2 Verification of a positive biometric claim.....	10
6.3.3 Identification.....	11
6.4 Enrolment, verification and identification transactions.....	11
6.5 Performance measures.....	12
6.5.1 Error rates.....	12
6.5.2 Throughput rates.....	12
6.5.3 Types of performance testing.....	13
7 Planning the evaluation	13
7.1 General.....	13
7.2 Determine information about the system.....	14
7.3 Controlling factors that influence performance.....	15
7.4 Test subject selection.....	16
7.5 Test size.....	17
7.5.1 General.....	17
7.5.2 Collecting multiple recognition transactions per test subject per system.....	17
7.5.3 Requirements on test size.....	18
7.6 Multiple tests.....	18
8 Data collection	19
8.1 Avoidance of data collection errors.....	19
8.2 Data and details collected.....	19
8.3 Enrolments.....	20
8.3.1 Enrolment transactions.....	20
8.3.2 Enrolment conditions.....	21
8.3.3 Enrolment failures and presentation errors.....	21
8.4 One-to-one comparison trials.....	22
8.4.1 General.....	22
8.4.2 Collection conditions.....	22
8.4.3 Frequency of use.....	22
8.4.4 Systems performing optimization based on enrolled references.....	23
8.4.5 Systems performing reference adaptation.....	23
8.4.6 Processes for data entry errors and system misuse.....	23

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8.4.7	Failures to acquire.....	23
8.4.8	Adding test data to the corpus.....	23
8.4.9	Online comparison trials.....	23
8.4.10	Offline comparison trials.....	24
8.4.11	Offline non-mated comparison trials when references are dependent.....	25
8.4.12	Offline non-mated comparison trials based on comparison of references.....	25
8.4.13	Use of samples from multi-capture comparison transactions.....	25
8.5	Identification trials.....	26
8.5.1	General.....	26
8.5.2	Identification testing with non-enrolled test subjects.....	26
8.5.3	Use of jack-knife approach for identification testing.....	26
9	Analyses.....	26
9.1	General.....	26
9.2	Performance of biometric enrolment.....	27
9.2.1	Failure-to-enrol rate.....	27
9.2.2	Enrolment transaction duration.....	27
9.3	Performance of biometric acquisition.....	28
9.3.1	Failure-to-acquire rate.....	28
9.3.2	Acquisition process duration.....	28
9.3.3	Other aspects of acquisition performance.....	28
9.4	One-to-one comparison performance.....	29
9.4.1	False non-match rate.....	29
9.4.2	False match rate.....	29
9.5	Verification system performance metrics.....	30
9.5.1	General.....	30
9.5.2	False reject rate.....	30
9.5.3	False accept rate.....	31
9.5.4	Verification transaction duration.....	31
9.5.5	Generalized false reject rate and generalized false accept rate.....	31
9.6	Identification system performance metrics.....	32
9.6.1	General.....	32
9.6.2	False-negative identification rate.....	33
9.6.3	False-positive identification rate.....	33
9.6.4	Generalized false-negative identification rate and generalized false-positive identification rate.....	34
9.6.5	Selectivity.....	34
9.6.6	Closed-set test of identification performance.....	35
9.6.7	Estimation of identification error rates from one-to-one comparison results.....	35
9.6.8	Predicting identification error rates in larger populations.....	35
9.7	Analysis of performance across controlled experimental factors.....	36
9.7.1	Longitudinal analyses.....	36
9.7.2	Pairwise analyses.....	36
9.8	Detection error trade-off.....	36
9.9	Transaction durations.....	37
9.10	Computational workload.....	37
9.11	Uncertainty of estimates.....	38
10	Graphical presentation of results.....	39
10.1	Score distributions.....	39
10.1.1	General.....	39
10.1.2	Boxplots.....	39
10.2	Error rate vs threshold plot.....	39
10.3	DET plot.....	40
10.4	CMC plot / FNIR over rank plot.....	43
10.5	FNIR over number of enrollees plot.....	45
10.6	Heat maps.....	46
11	Record keeping.....	46

This is a preview of "ISO/IEC 19795-1:2021". [Click here to purchase the full version from the ANSI store.](#)

12	Reporting performance results	47
12.1	Reporting test details	47
12.2	Summary statistics	48
12.3	Reporting enrolment performance	48
12.4	Reporting acquisition performance.....	49
12.5	Reporting one-to-one comparison performance.....	49
12.6	Reporting verification system performance.....	49
12.7	Reporting identification system performance.....	50
12.8	Reporting performance across factors.....	50
Annex A	(informative) Differences between evaluation types	52
Annex B	(informative) Test size and random uncertainty	53
Annex C	(informative) Factors influencing performance	61
Annex D	(informative) Pre-selection algorithm performance	66
Annex E	(informative) Identification performance as a function of database size	68
Annex F	(informative) Algorithms for generating DET and CMC	69
Annex G	(informative) DET properties and interpretation	72
Bibliography	76

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.

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

This second edition cancels and replaces the first edition (ISO/IEC 19795-1:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- Terminology is updated to follow the biometrics vocabulary of ISO/IEC 2382-37:2017;
- Additional detail is provided on testing and reporting of transaction times and computational workload, and on graphical representation of results.

A list of all parts in the ISO 19795 series can be found on the ISO website.

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Introduction

This document is concerned solely with the scientific technical performance testing of biometric systems and devices. Technical performance testing seeks to determine error and throughput rates, with the goal of understanding and predicting the real-world error and throughput performance of biometric systems. The error rates include both false-positive and false-negative rates, as well as failure-to-enrol and failure-to-acquire rates across the test population. Throughput rates refer to the number of individuals processed per unit of time based both on computational speed and human-machine interaction. These measures are generally applicable to all biometric systems and devices. Technical performance tests that are modality-specific, for example, fingerprint scanner image quality, are not considered in this document.

The purpose of this document is to present the requirements and best scientific practices for conducting and reporting technical performance testing. It is acknowledged that technical performance testing is only one form of biometric testing. Other types of testing not considered in this document include:

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

Biometric technical performance testing can be of three types: technology, scenario and operational evaluation. Each type of test requires a different protocol and produces different types of results. Other parts of the ISO/IEC 19795 series provide specific advice and requirements for the development and use of such different test protocols. This document addresses specific philosophies and principles that can be applied over a broad range of test conditions.