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ISO/IEC 19795-7:2011

Australian STANDARD®

STANDARDS Australia

Information technology — Biometric performance testing and reporting

Part 7: Testing of on-card biometric comparison algorithms



AS ISO/IEC 19795.7:2025

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Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

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The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

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(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee IT-032, Biometrics and Identification.

The objective of this document is to establish a mechanism for measuring the core algorithmic capabilities of biometric comparison algorithms running on ISO/IEC 7816 integrated circuit cards. Specifically, this document:

- instantiates a mechanism for on-card biometric comparison testing;
- standardizes procedures for the measurement of the accuracy of on-card biometric comparison implementations running on object-based, test-specific sample cards;
- standardizes procedures for the measurement of durations of the various operations;
- gives examples for matching AS ISO/IEC 19794.2:2024 compact card minutiae templates.

This document is identical to, and has been reproduced from, ISO/IEC 19795-7:2011, *Information technology — Biometric performance testing and reporting — Part 7: Testing of on-card biometric comparison algorithms*.

As this document has been reproduced from an international document, the following apply:

(a) In the source text “this part of ISO/IEC 19795” is to be read as “this document”.

(b) A comma is to be read as a full point when referring to a decimal marker.

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The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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 19795-7 was prepared by Joint Technical Committee ISO/IEC JTC 1, 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 7: Testing of on-card biometric comparison algorithms*

The following part is under preparation:

— *Part 6: Testing methodologies for operational evaluation*

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Introduction

Biometric recognition algorithms have been ported to ISO/IEC 7816 integrated circuit cards to realize the privacy enhancing benefits asserted for the on-card biometric comparison paradigm. While the most common commercial realization of this capability has been the comparison of fingerprint minutiae templates on card, comparison of data from other modalities has been implemented also. Indeed the relevant card standards have been explicitly drafted to support arbitrary biometric modalities. Further information on modality-specific aspects can be found in ISO/IEC 19795-3. In any case, while the computational capability of such cards has increased in recent years, there remains the question of whether verification accuracy needs to be traded off for speed or data size or both. For fingerprint templates, the goal of improved efficiency has led to the development of the ISO/IEC 19794-2:2005 compact-size card formats specifically for on-card biometric comparison.

This part of ISO/IEC 19795 specifies a mechanism for measuring both accuracy and speed of ISO/IEC 7816 integrated circuit cards processing data from arbitrary modalities. It includes examples for the data structures and commands needed to match conformant ISO/IEC 19794-2:2005 minutiae templates on cards.

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