
**Information technology —
Conformance testing methodology for
biometric data interchange formats
defined in ISO/IEC 19794 —**

**Part 5:
Face image data**

*Technologies de l'information — Méthodologie d'essai de conformité
pour les formats d'échange de données biométriques définis dans
l'ISO/CEI 19794 —*

Partie 5: Données d'image de la face

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Conformance	1
3 Normative references	2
4 Terms and definitions	2
5 Symbols and abbreviated terms	2
6 Conformance testing methodology	2
6.1 Overview.....	2
6.2 Table of requirements in the base standard.....	2
6.3 ISO/IEC 19794-5:2005 Level 1 and 2 test assertions.....	13
Bibliography	28

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

This third edition cancels and replaces the second edition (ISO/IEC 29109-5:2012), the tables of which have been technically revised.

ISO/IEC 29109 consists of the following parts, under the general title *Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794*:

- *Part 1: Generalized conformance testing methodology*
- *Part 2: Finger minutiae data*
- *Part 4: Finger image data*
- *Part 5: Face image data*
- *Part 6: Iris image data*
- *Part 7: Signature/sign time series data*
- *Part 8: Finger pattern skeletal data*
- *Part 9: Vascular image data*
- *Part 10: Hand geometry silhouette data*

Introduction

The ISO/IEC 19794-5:2005 standard specifies a data record interchange format for storing, recording, and transmitting one or more face images within a Common Biometric Exchange Formats Framework (CBEFF) data structure. Each image is accompanied by subject-specific and image-specific metadata contained in a header record. This part of the ISO/IEC 29109 multipart standard establishes tests for checking the correctness of the binary record.

The objective of ISO/IEC 19794-5:2005 cannot be completely achieved until biometric products can be tested to determine whether they conform to those specifications. Conforming implementations are a necessary prerequisite for achieving interoperability among implementations; therefore there is a need for a standardized conformance testing methodology, test assertions, and test procedures as applicable to specific modalities addressed by each part of ISO/IEC 19794. The test assertions will cover as much as practical of the ISO/IEC 19794 requirements (covering the most critical features), so that the conformity results produced by the test suites will reflect the real degree of conformity of the implementations to ISO/IEC 19794 Data Interchange Format records. This is the motivation for the development of this conformance testing methodology.

This part of ISO/IEC 29109 supports those applications that require use of face image data according to ISO/IEC 19794-5:2005. It defines a testing methodology to ensure conformance of a vendor's application or service to the base ISO/IEC 19794-5:2005 specification. Thus this document is intended to

- establish elements of the Conformance Testing Methodology framework that are specific to the Face Image-based Data Record requirements of ISO/IEC 19794-5:2005 conformance testing,
- define requirements and guidelines for specifying conformance test suites and related test methods for measuring conformity of products and services to the Face Image-based Data Record requirements of ISO/IEC 19794-5:2005, and
- define test procedures to be followed before, during, and after conformance testing.

This standard is applicable to the development and use of conformity test method specifications, conformity test suites for ISO/IEC 19794-5:2005 records, and conformance testing programs for ISO/IEC 19794-5:2005 conformant products. It is intended primarily for use by testing organizations, but may be applied by developers and users of test method specifications and test method implementations.

Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794 —

Part 5: Face image data

1 Scope

This part of ISO/IEC 29109 specifies elements of conformance testing methodology, test assertions, and test procedures as applicable to two-dimensional face images defined in the ISO/IEC 19794-5:2005 biometric data interchange format standard for face image data.

This part of ISO/IEC 29109 establishes

- test assertions of the structure of the face image data format as specified in ISO/IEC 19794-5:2005 (Type A Level 1 as defined in ISO/IEC 29109-1:2009),
- test assertions of internal consistency by checking the types of values that may be contained within each field (Type A Level 2 as defined in ISO/IEC 29109-1:2009).

This part of ISO/IEC 29109 does not establish

- tests of conformance of 3D face records defined in ISO/IEC 19794-5:2005/Amd.2,
- tests of conformance of CBEFF structures required by ISO/IEC 19794-5:2005,
- tests of consistency with the input biometric data record (Level 3),
- tests of conformance of the image data to the quality-related specifications of ISO/IEC 19794-5:2005,
- tests of conformance of the image data blocks to the respective JPEG or JPEG 2000 standards,
- tests of other characteristics of biometric products or other types of testing of biometric products (e.g. acceptance, performance, robustness, security).

2 Conformance

Biometric data interchange format conformance tests conform to this part of ISO/IEC 29109 if they satisfy all of the normative requirements related to [Clause 6](#). Specifically, they shall use the test methodology specified in Clauses 6, 7 and 8 of ISO/IEC 29109-1, and all Level 1 and Level 2 tests shall use the assertions defined in [Table 2](#) of this part of ISO/IEC 29109.

Implementations of ISO/IEC 19794-5:2005 tested according to the methodology specified shall be able to claim conformance only to those biometric data record requirements specified in ISO/IEC 19794-5:2005 that are tested by the test methods established by this methodology.

Implementations of ISO/IEC 19794-5:2005 do not necessarily need to conform to all possible aspects of ISO/IEC 19794-5:2005, but only to those ISO/IEC 19794-5:2005 requirements that are claimed to be supported by the implementation in an Implementation Conformance Statement, filled out in accordance with Clause 8 of ISO/IEC 29109-1 and [Table 1](#) of this part of ISO/IEC 29109.

3 Normative references

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

ISO/IEC 19794-5:2005, *Information technology — Biometric data interchange formats — Part 5: Face image data*

ISO/IEC 29109-1:2009, *Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794 — Part 1: Generalized conformance testing methodology*

4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 29109-1 apply.

5 Symbols and abbreviated terms

For the purposes of this document, the symbols and abbreviated terms given in ISO/IEC 29109-1 apply.

6 Conformance testing methodology

6.1 Overview

The testing methodology specified in Clauses 6, 7 and 8 of ISO/IEC 29109-1 shall apply. The content of the tables below is based on the conformance testing methodology outlined in ISO/IEC 29109-1 and shall only be used in the context of that testing methodology.

6.2 Table of requirements in the base standard

The normative requirements of ISO/IEC 19794-5:2005 Biometric Data Interchange Format – Part 5: Face Image Data are listed in [Table 1](#). The supplier of the IUT can explain which optional components of the standard are supported and the testing laboratory can note the results of the test.

Under subformat applicability the columns labelled B, F and T indicate the Basic, Full Frontal and Token Frontal image types.

Table 1 — Requirements of the Base Standard (ISO/IEC 19794-5:2005)

Requirement ID	Ref. in Base Std	Requirement Summary	Level	Status	Subformat Applicability			IUT Support	Supported Range	Test Result
					B	F	T			
R-1	5.2.1	Within the record format and all well-defined data blocks therein, all multi-byte quantities are [implied shall] stored in Big-Endian format. That is, the more significant bytes of any multi-byte quantity are stored at lower addresses in memory than less significant bytes. For example, the value 1025 (2 to the 10th power plus one) would be stored as first byte = 00000100 and second byte = 00000001.	1	M	Y	Y	Y			
R-2	5.2.2	Numeric Values All numeric values are fixed-length unsigned integer quantities, unless otherwise specified.	3C	0-3	Y	Y	Y			