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Information technology — Biometric data interchange formats —

Part 9: Vascular image data

AMENDMENT 1: Conformance testing methodology

Technologies de l'information — Formats d'échange de données biométriques —

Partie 9: Données d'images vasculaires

AMENDEMENT 1: Méthodologie des essais de conformité

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Foreword

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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.

Amendment 1 to ISO/IEC 19794-9:2011 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

Information technology — Biometric data interchange formats —

Part 9:
Vascular image data

AMENDMENT 1: Conformance testing methodology

1. The following text is to be added to the "Introduction" clause of ISO/IEC 19794-9:

Annex A addresses the conformance testing to be used for interchange format defined in this part of ISO/IEC 19794. This Annex A is distinct from ISO/IEC 29109-9, which addressed conformance testing only of the first, 2007, edition of ISO/IEC 19794-9.

2. The following text is to be added to the "Scope" clause of ISO/IEC 19794-9:

This part of ISO/IEC 19794 also specifies elements of conformance testing methodology, test assertions, and test procedures as applicable to this part of ISO/IEC 19794. Specifically, it establishes

— test assertions of the structure of the vascular image data format as specified in Clause 8 of this part of ISO/IEC 19794 (Type A Level 1 as defined in ISO/IEC 19794-1:2011/Amd.1),

— 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 19794-1:2011/Amd.1),

— tests of semantic assertions (Type A Level 3 as defined in ISO/IEC 19794-1:2011/Amd.1).

The conformance testing methodology specified in this part of ISO/IEC 19794 does not establish

— tests of other characteristics of biometric products or other types of testing of biometric products (e.g. acceptance, performance, robustness, security),

— tests of conformance of systems that do not produce data records conforming to the requirements of this part of ISO/IEC 19794.

3. The following text is to be added to the "Conformance" clause of ISO/IEC 19794-9:

Biometric data interchange format conformance tests conform to this part of ISO/IEC 19794 if they satisfy all of the normative requirements set forth in Clauses 6, 7, and 8. Specifically, they shall use the test methodology specified in ISO/IEC 19794-1:2011/Amd.1, and all Level 1, Level 2 and Level 3 tests shall use the assertions defined in Table A.1 of Clause A.2 in this part of ISO/IEC 19794.

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

In consideration of the semantic specifics in different parts of ISO/IEC 19794, all Level 1, Level 2, and Level 3 tests shall use the assertions defined in Table A.2 of clause A.3 of this part of ISO/IEC 19794 in conformity with the concept and rules set in ISO/IEC 19794-1, Annex A.

4. Replace the current Annex A with the following new annex:

Annex A
(normative)

Conformance Testing Methodology

A.1 Introduction

This normative annex specifies elements of conformance testing methodology, test assertions, and test procedures as applicable to this part of biometric data interchange format standard.

The testing methodology specified in ISO/IEC 19794-1:2011/Amd.1 shall apply. The content of the tables below is based on the conformance testing methodology outlined in ISO/IEC 19794-1:2011/Amd.1 and shall only be used in the context of that testing methodology.

A.2 Table of requirements in the base standard

The normative requirements of this part of ISO/IEC 19794 are listed in Table A.1. The supplier of the IUT should explain which optional components of the standard are supported and the testing laboratory should note the results of the test.

Table A.1 — Requirements of the Base Standard

Requirement ID	Reference in Base Standard	Requirement Summary	Level	Status	IUT Support	Supported Range	Test Result
R- 1	6.1	The quantities in all records and vascular biometric image elements (pixel data), if represented as multi-byte quantities, are represented in big-endian format.	1	M		N/A	
R- 2	6.1	The order for transmission shall also be the most significant byte first and the least significant byte last. Within a byte, the order of transmission shall be the most significant bit first and the least significant bit last.	3C	O-1		N/A	N/T
R- 3	6.2	The scan sequence shall be raster scan order.	3C	O-1		N/A	N/T
R- 4	7.1	The spatial sampling rate of the captured image shall be represented in terms of pixels per centimetre.	3C	O-1		N/A	N/T
R- 5	7.2	The image shall have a dynamic range spanning at least 128 gray scale levels, allocating at least one byte (8 bits) per intensity value and providing at least 7 bits of useful intensity information.	1	M		N/A	
R- 6	7.5	The captured image shall be an orthographic projection of the body area being imaged.	3C	O-1		N/A	N/T

Requirement ID	Reference in Base Standard	Requirement Summary	Level	Status	IUT Support	Supported Range	Test Result
R- 7	7.6.2	If lossless compression is used the image data shall be compressed in accordance with the JPEG-LS lossless compression algorithm specified in ISO/IEC 14495 or the JPEG2000 compression algorithm specified in ISO/IEC 15444.	3C	O-1		N/A	N/T
R- 8	7.6.3	If lossy compression is used the image shall be compressed in accordance with the JPEG compression algorithm specified in ISO/IEC 10918 or the JPEG2000 compression algorithm specified in ISO/IEC 15444.	3C	O-1		N/A	N/T
R- 9	7.6.4	Images captured with more than three sensing channels shall be stored in accordance with the JPEG2000 compression algorithm as specified in ISO/IEC 15444.	3C	O-1		N/A	N/T
R- 10	7.7	The location of human body used for imaging shall be specified in the format.	1	M		N/A	
R- 11	7.7	The direction (left/right) of hand and/or finger index (thumb, index, middle, ring, and little) shall be specified.	1	M		N/A	
R- 12	8.2.1	The format identifier shall be recorded in four bytes. The format identifier shall consist of three characters "VIR" followed by a zero byte as a NULL string terminator.	1	M		N/A	
R- 13	8.2.2	The number for the version of that part of ISO/IEC 19794 used for constructing the BDIR shall be placed in four bytes. This version number shall consist of three ASCII numerals followed by a zero byte as a NULL string terminator. The first and second character will represent the major version number and the third character will represent the minor revision number. Upon approval of a specification, the initial version number will be "020" – Version 2 revision 0.	1	M		N/A	
R- 14	8.2.3	The length (in bytes) of the entire BDIR shall be recorded in four bytes.	1	M			
R- 15	8.2.3	This count shall be the total length of the BDIR including the general record header and one or more representation records.	2	M			
R- 16	8.2.4	The total number of representation records contained in the BDIR shall be recorded in two bytes. A minimum of one representation is required.	2	M			
R- 17	8.2.5	As this part of ISO/IEC 19794 does not support certifications this field shall be 00_{Hex}.	1	M			

Requirement ID	Reference in Base Standard	Requirement Summary	Level	Status	IUT Support	Supported Range	Test Result
R- 18	8.3.2	The representation-length field denotes the length in bytes of the representation including the representation header fields.	1	M			
R- 19	8.3.2	The representation-length four-byte field shall contain the length in bytes of the vascular image.	2	M			
R- 20	8.3.3	The date and time field within a representation header shall be stated in Coordinated Universal Time (UTC). The capture date and time field shall consist of 9 bytes. Its value shall be encoded in the form given in ISO/IEC 19794-1.	1	M			
R- 21	8.3.4	The capture device technology ID shall be encoded in one byte. This field shall indicate the class of capture device technology used to acquire the captured biometric sample. A value of 00Hex indicates unknown or unspecified technology. See Table 4 for the list of possible values.	1	M			
R- 22	8.3.5	The capture device vendor identifier shall identify the biometric organization that owns the product that created the BDIR. The capture device algorithm vendor identifier shall be encoded in two bytes carrying a CBEFF biometric organization identifier (registered by IBIA or other approved registration authority). A value of all zeros shall indicate that the capture device vendor is unreported.	1	O			
R- 23	8.3.6	The capture device type identifier shall identify the product type that created the BDIR. It shall be assigned by the registered product owner or other approved registration authority. A value of all zeros shall indicate that the capture device type is unreported.	1	O			
R- 24	8.3.6	If the capture device vendor identifier is 0000Hex, then also the capture device type identifier shall be 0000Hex.	2	O			
R- 25	8.3.7.1	'Number of quality block' field is followed by the number of 5-byte Quality Blocks reflected by its value.	1	O			
R- 26	8.3.7.1	A value of zero (0) means that no attempt was made to assign a quality score. In this case, no Quality Blocks are present.	2	O			
R- 27	8.3.7.2	Quality score, as defined in ISO/IEC 29794-1, shall be a quantitative expression of the predicted verification performance of the biometric sample.	3C	O-1		N/A	N/T