

DRAFT AMENDMENT ISO/IEC 19794-14: DAM 1

ISO/IEC JTC 1/SC 37

Secretariat: ANSI

Voting begins on:
2015-05-04

Voting terminates on:
2015-08-04

Information technology — Biometric data interchange formats —

Part 14: DNA data

AMENDMENT 1: Conformance testing and clarification defects

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

Partie 14: Données ADN

AMENDEMENT 1:

ICS: 35.040

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Reference number
ISO/IEC 19794-14:2013/DAM 1:2015(E)

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Published in Switzerland

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Amendment 2 to ISO/IEC 19794-14:2013 was prepared by Joint Technical Committee ISO/IEC JTC 1, Information technology, Subcommittee SC 37, Biometrics.

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Information Technology — Biometric Data Interchange Formats — Part 14 - DNA Data – Amendment 1 : Conformance Testing and Clarification of Defects

1. The following text is to be added to the "Introduction" clause of ISO/IEC 19794-14:

The definition of conformance testing in annex A is distinct from the ISO/IEC 29109, which addressed conformance testing only of the first version of the ISO/IEC 19794 standard. This annex addresses the ISO/IEC 19794-14:2013 revision conformance testing.

Additionally, this part of the ISO/IEC standard supports XML encoding, to support a spectrum of user requirement. With XML, this part will meet the requirements of modern IT architectures. Annex B specifies the schema that XML encoded DNA data records must conform to, and Annex E provides an example of a valid XML encoded finger image record.

2. The following text is to be added to the "Scope" clause of ISO/IEC 19794-14:

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. It establishes test assertions pertaining to the structure of the DNA data format (Type A Level 1 as defined in ISO/IEC 19794-1:201X AMD 1), test assertions pertaining to internal consistency of the types of values that may be contained within each field (Type A Level 2 as defined in ISO/IEC 19794-1:201X AMD 1), and semantic test assertions (Type A Level 3 as defined in ISO/IEC 19794-1:201X 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 or consume data records not conforming to the requirements of this part of ISO/IEC 19794.

The conformance testing level 1 and level 2 defined in ISO/IEC 19794-14:201X AMD 1, and the conformance testing level 3 defined in ISO/IEC 19794-14:201X AMD 2.

3. The following text is to be added to the "Conformance" clause of ISO/IEC 19794-14:

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 X, Y, and Z. In consideration of the semantic specifics in different parts of 19794, all level 1, level 2, and level 3 tests shall use the assertions defined in Table N of clause M in this part of 19794 in conformity with the concept and rules set in 19794-1/AMD1

The description of the conformance testing methodology for ISO/IEC 19794-14 DNA data should reflect the general characteristics of a BDIR structure as specified in the ISO/IEC 19794-1/AMD1. However, the implementations of ISO/IEC 19794-14 DNA data may include examples in conformance testing with biometric data record (BDB) embedded in a patron

format, e.g. CBEFF in this part of ISO/IEC 19794.

The included implementations do not necessarily need to conform to all possible aspects of this part of ISO/IEC 19794, but only to those requirements supported by an Implementation Conformance Statement (ICS) in accordance with Clause K of ISO/IEC 19794-1:201x AMD 1 and Table K of Clause R of this part of ISO/IEC 19794.

4. The following text is to be added to the "STR DNA Profile" clause of ISO/IEC 19794-14.

Because "allele call number #1" contain float number only, in case of the locus marker is "Amelogenin", the value of "allele call number #1" shall be "0" instead of "X" or "1" instead of "Y".

5. The following text is to be replaced in clause 6.3 of ISO/IEC 19794-14.

Replace :

"The CBEFF_BDB_format_type shall be specified by the CBEFF BDB format type identifier assigned by ISO/IEC JTC1/SC37 to this DNA record format. This value is the sixteen bit value 0x0008."

With

"The CBEFF_BDB_format_type shall be specified by the CBEFF BDB format type identifier assigned by ISO/IEC JTC1/SC37 to this DNA record format. This value is the sixteen bit value 0x0020."

6. Replace Annex A of ISO/IEC 19794-14:2013 with the following one

Annex A. Conformance Testing Methodology

(normative)

The testing methodology specified in Clauses A.1, A.2 and A.3 of ISO/IEC 19794-1/AMD1 shall apply. The content of the tables below is based on the conformance testing methodology outlined in 19794-1/AMD1 and shall only be used in the context of that testing methodology

A.1. Table of requirement in the base standard for conformance testing level 1 and 2

The normative requirements of ISO/IEC 19794-14 Biometric Data Interchange Format – Part 14 DNA Data are listed in Table A.1. The supplier of the IUT shall explain which optional components of the standard are supported and the testing laboratory shall note the results of the test.

This table, A.1, may extend over multiple pages.

Table A.1 – Table of Requirements of the Base Standard (19794-14)

Requirement ID	Reference in Base Standard	Requirement Summary	Level	Status	IUT Support	Supported Range	Test Result	XML Applicability
R-1	6.3 BDB	<p>The biometric data record represented using the DNA record format may be embedded in the biometric data block (BDB) of the CBEFF patron format compliant with ISO/IEC 19785-1:2004. If a CBEFF header is used, the following specifications apply:</p> <p>The CBEFF patron format requests to specify both CBEFF_BDB_format_owner and CBEFF_BDB_format_type as mandatory elements in the CBEFF Header.</p> <p>The CBEFF_BDB_format_owner shall be specified by the CBEFF biometric organization identifier issued by the CBEFF registration authority to ISO/IEC JTC1/SC37. This value is the sixteen bit value 0x0101.</p> <p>The CBEFF_BDB_format_type shall be specified by the CBEFF BDB format type identifier assigned by ISO/IEC JTC1/SC37 to this DNA record format. This value is the sixteen bit value 0x0008</p>	2	O-x				No
R-2	6.3 BDIR	The structure of a BDIR consisting of one mandatory General Header and one or more Representation parts	2	M				Yes
R-3	6.4.1.1	The format identifier field shall be the string "DNA"	2	M				Yes
R-4	6.4.1.2	The version field shall be the Major version 3 and Minor version 0	2	M				Yes
R-5	6.4.1.3	The communication direction field shall contain a string listed in Table 2 of this standard.	2	M				Yes
R-6	6.4.1.4	The NationalityCode of sending party field shall contain a valid ISO 3166-2 code entry.	2	M				Yes
R-7	6.4.1.4	The Name of Entity of sending party field shall contain a valid ISO 3166-2 code entry.	1	M				Yes
R-8	6.4.1.4	The Name of Person of sending party field shall contain a valid ISO 3166-2 code entry.	1	M				Yes
R-9	6.4.1.5	The NationalityCode of receiving party field shall contain a valid ISO 3166-2 code entry.	2	M				Yes
R-10	6.4.1.5	The Name of Entity of receiving party field shall contain a valid ISO 3166-2 code entry.	1	M				Yes
R-11	6.4.1.5	The Name of Person of receiving party field shall contain a valid ISO 3166-2 code entry.	1	M				Yes
R-12	6.4.1.6	The entity type field shall be in accordance with clause 6.4.1.6	2	M				Yes
R-13	6.4.1.7	The date and time of data exchange field shall be in accordance with 19794-1 AMD2	2	M				Yes

R-14	6.4.2.1	The sample collection date field shall be in accordance with 19794-1 AMD2	2	M			Yes
R-15	6.4.2.2.	The sample category field shall be in accordance with Table 5.	2	M			Yes
R-16	6.4.2.3.	The sample cellular type field shall be in accordance with Table 6.	2	M			Yes
R-17	6.4.2.4	The sample typing technology field shall be in accordance with Table 7.	2	M			Yes
R-18	6.4.2.5	The specimen contributor field shall be in accordance with Table 8.	2	M			Yes
R-19	6.4.2.6	The sample collection method field shall be in string	1	M			Yes
R-20	6.4.2.7	The sample collection location field shall be in string	1	M			Yes
R-21	6.4.2.8	The sample collection Geo-Location fields shall be in accordance with Table 9 and WGS 84.	2	M			Yes
R-22	6.4.2.9	The pedigree tree field shall be in accordance with clause 6.4.2.9	2	M			Yes
R-23	6.4.3.1.1	The date and time field shall be in accordance with 19794-1 AMD2	2	M			Yes
R-24	6.4.3.1.2	The batch ID field shall be in string	1	M			Yes
R-25	6.4.3.1.3	The dna profile ID field shall be in string	1	M			Yes
R-26	6.4.3.1.4	The kit ID field shall be in string	1	M			Yes
R-27	6.4.3.1.5	The lab certification field shall be in accordance with clause 6.4.3.1.5 and contain values from Table 15.	2	M			Yes
R-28	6.4.3.1.6	The scope of accreditation field shall be in accordance with clause 6.4.3.1.6 and contain values from table 17.	2	M			Yes
R-29	6.4.3.1.7	The request type field shall be in accordance with clause 6.4.3.1.7 and contain values from Table 19.	2	M			Yes
R-30	6.4.3.1.7	The request type field shall be mandatory when the communication direction is "R" (request), otherwise optional.	2	M			Yes
R-31	6.4.3.1.8	The result field shall be in accordance with clause 6.4.3.1.8 and contain values from Table 21.	2	M			Yes
R-32	6.4.3.1.8	The result type field shall be mandatory when the communication direction is "A" (Answer), otherwise optional.	2	M			Yes
R-33	6.4.3.1.9	The error message field shall be in string	1	M			
R-34	6.4.3.1.10	The supplementary message field shall be in string	1	M			
R-35	6.4.3.2.1	The STR DNA profile field shall be in accordance with clause 6.4.3.2.1.	2	M			Yes
R-36	6.4.3.2.1	The STR DNA profile field shall mandatory when the sample typing technology is "STR", otherwise optional. See Table 22.	2	M			Yes

R-37	6.4.3.2.2	The Y-STR DNA profile field shall be in accordance with clause 6.4.3.2.2	2	M				Yes
R-38	6.4.3.2.2	The Y-STR DNA profile field shall mandatory when the sample typing technology is "Y-STR", otherwise optional. See Table 22.	2	M				Yes
R-39	6.4.3.2.3	The mitochondrial DNA data field shall be in accordance with clause 6.4.3.2.3	2	M				Yes
R-40	6.4.3.2.3	The mitochondrial DNA data type field shall mandatory when the sample typing technology is "mtDNA", otherwise optional. See Table 22.	2	M				Yes
R-41	6.4.3.2.4	The electropherogram data field shall be in accordance with clause 6.4.3.2.4	2	M				Yes
R-42	6.4.3.2.4	The electropherogram data field shall mandatory when the sample typing technology is "Electropherogram", otherwise optional. See Table 22.	2	M				Yes
R-43	6.4.3.2.5	The user defined DNA Data field shall be in accordance with table 42.	2	M				Yes

Note. For R-1 requirement, 'O-x' means that CBEFF conformance testing is out of scope of this document.

A.2. Table Conformance Test Assertions

The XML encoded conformance test assertions are listed in the order in that the corresponding fields are required to appear, if present, in a conforming record.

This table, A.1, may extend over multiple pages.

Table A.2 – XML Encoded Conformance Test Assertions

Test No.	Section	Requirement ID	Level	Field Name	Operator	Operand	Test Note	Status	IUT Support	Supported Range	Test Result
1	6 DNA format specification	R-2	2	Entire field	EQ	BDIR has one general header and at least one representation					
2	6.4.1 DNA Record General Header	R-3	2	Format Identifier	EQ	"DNA"					
3	6.4.1 DNA Record General Header	R-4	2	Version – Major version	EQ	3					

4	6.4.1 DNA Record General Header	R-4	2	Version – Minor version	EQ	0					
5	6.4.1 DNA Record General Header	R-5	2	Communication Direction	EQ	"Request" or "Answer"					
6	6.4.1 DNA Record General Header	R-6	2	Sending Party : Nationality Code	EQ	Nationality code defined in ISO 3166-2					
7	6.4.1 DNA Record General Header	R-7	1	Sending Party : Name of Entity	GTE	Length ≥ 0					
8	6.4.1 DNA Record General Header	R-8	1	Sending Party : Name of Person	GTE	Length ≥ 0					
9	6.4.1 DNA Record General Header	R-9	2	Receiving Party : Nationality Code	EQ	Nationality code defined in ISO 3166-2					
10	6.4.1 DNA Record General Header	R-10	1	Receiving Party : Name of Entity	GTE	Length ≥ 0					
11	6.4.1 DNA Record General Header	R-11	1	Receiving Party : Name of Person	GTE	Length ≥ 0					
12	6.4.1 DNA Record General Header	R-12	2	Entity Type	EQ	"G", "GM", "GR", "I", "IM", "IR", "O", "OM", "OR", "U", "UM" or "UR"					
13	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Year	EQ	1 to 65534					
14	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing: Month	EQ	1 to 12					
15	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Day	EQ	1 to 31					
16	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Hour	EQ	0 to 23					
17	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Minute	EQ	0 to 59					
18	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Second	EQ	0 to 59					

19	6.4.1 DNA Record General Header	R-13	2	Date and Time of Data Processing : Millisecond	EQ	0 to 999					
20	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Year	EQ	1 to 65534					
21	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Month	EQ	1 to 12					
22	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Day	EQ	1 to 31					
23	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Hour	EQ	0 to 23					
24	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Minute	EQ	0 to 59					
25	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Second	EQ	0 to 59					
26	6.4.2 Representation Metadata	R-14	2	Sample Collection Date : Millisecond	EQ	0 to 999					

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27	6.4.2 Representation Metadata	R-15	2	Sample Category	EQ	<p>"Arrestee", "Claimed Biological Child", "Claimed Biological Father", "Claimed Biological Mother", "Claimed Biological Sibling", "Claimed Biological Spouse", "Actual Biological Child", "Actual Biological Father", "Actual Biological Mother", "Actual Biological Sibling", "Actual Biological Spouse", "Adoptive Biological Child", "Adoptive Biological Father", "Adoptive Biological Mother", "Adoptive Biological Sibling", "Adoptive Biological Spouse", "Convicted Offender", "Forensic, Unknown", "Insurgent", "Known Suspected Terrorist", "Maternal Relative", "Missing Person", "Paternal Relative", "Suspect, Known", "Unidentified Living", "Unidentified Dead", "Victim, Known", "Detainee", "Other" or "Unspecified"</p>					
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28	6.4.2 Representation Metadata	R-16	2	Sample Cellular Type	EQ	"Blood", "Bone", "Commingled Biological Material", "Hair", "Saliva", "Semen", "Skin", "Sweat/Fingerprint", "Tissue", "Tooth (including Pulp)", "Other", "Unknown" or "Unspecified"					
29	6.4.2 Representation Metadata	R-17	2	Sample Typing Technology	EQ	"STR", "Y-STR", "mtDNA", "Electropherogram" or "User Defined Typing"					
30	6.4.2 Representation Metadata	R-18	2	Specimen Contributor	EQ	"Known" or "Unknown"					
31	6.4.2 Representation Metadata	R-19	1	Sample Collection Method	GTE	Length ≥ 0					
32	6.4.2 Representation Metadata	R-20	1	Sample Collection Location	GTE	Length ≥ 0					
33	6.4.2 Representation Metadata	R-21	2	Sample Collection Geo-Location : Latitude	EQ	-90.0 ≤ latitude ≤ +90.0					
34	6.4.2 Representation Metadata	R-21	2	Sample Collection Geo-Location : Longitude	EQ	-180.0 ≤ longitude ≤ +180.0					
35	6.4.2 Representation Metadata	R-22	2	Pedigree Tree : Pedigree Member ID	GT	0					
36	6.4.2 Representation Metadata	R-22	2	Pedigree Tree : Specimen ID	LTE	Length ≤ 24					
37	6.4.2 Representation Metadata	R-22	2	Pedigree Tree : Mother ID	GT	0					
38	6.4.2 Representation Metadata	R-22	2	Pedigree Tree : Father ID	GT	0					