



## Information technology — Biometric data interchange formats —

### Part 2: Finger minutiae data

#### TECHNICAL CORRIGENDUM 1

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

*Partie 2: Données du point caractéristique du doigt*

*RECTIFICATIF TECHNIQUE 1*

Technical Corrigendum 1 to ISO/IEC 19794-2:2005 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

---

*Page vi, Introduction*

In paragraph 2, replace sentence 2 with the following:

Ten types of data formats are then defined:

- two for general storage and data interchange; one of minutiae data only and one including also standardised extended data;
- two normal-size format types without record header for use in card-based systems — one with ridge endings represented by valley skeleton bifurcation points and one with ridge endings represented by ridge skeleton end points;

- two compact-size format types without record header for use in card-based systems — one with ridge endings represented by valley skeleton bifurcation points and one with ridge endings represented by ridge skeleton end points;
- two normal-size format types with record header for use in card-based systems — one with ridge endings represented by valley skeleton bifurcation points and one with ridge endings represented by ridge skeleton end points;
- two compact-size format types with record header for use in card-based systems — one with ridge endings represented by valley skeleton bifurcation points and one with ridge endings represented by ridge skeleton end points.

*Page 1, Clause 3*

Replace the second normative reference with the following:

ISO/IEC 19784-1:2006, *Information technology — Biometric application programming interface — Part 1: BioAPI specification*

In the third normative reference, replace “ISO/IEC 19785-1:—<sup>1</sup>)” with “ISO/IEC 19785-1:2006”.

Replace the fourth normative reference with the following:

ISO/IEC 19785-2:2006, *Information technology — Common Biometric Exchange Formats Framework — Part 2: Procedures for the operation of the Biometric Registration Authority*

Add the following normative reference at the end of the list:

ISO/IEC 19785-3:2007, *Information technology — Common Biometric Exchange Formats Framework — Part 3: Patron format specifications*

*Page 21, 7.6*

In paragraph 1, delete sentence 2.

*Page 21, 7.6, Table 7*

In the row for the field “Number of Finger Views”, replace the entry in the column “Valid Values” with “0 to 176” and add “11 times 16” in the column “Notes”.

*Page 22, Clause 8*

Replace the first paragraph with the following:

This clause defines two card-related encoding formats for a series of minutiae descriptions. These are the normal size format and the compact size format. A series of minutiae descriptions as defined in 8.1 or as defined in 8.2 may be embedded in

- a tag-length-value encoded biometric data DO as defined in ISO/IEC 7816-11, or
- a finger minutiae record as defined in Clause 7, instead of a series of fixed-length (6-byte) minutiae descriptions.

*Page 23, 8.3.1*

Replace all occurrences of “Annex C” with “Annex D”.

*Page 23, 8.3.2*

In paragraph 1, replace sentence 2 with the following:

They can be encoded as DOs embedded in a matching algorithm parameter template as defined in ISO/IEC 19785-3:2007, Clause 11.

*Page 23, 8.3.3*

In the last paragraph, replace “Annex C” with “Annex D”.

*Page 26, 8.4.1, Table 13*

In the row for the DO with tag ‘94’, replace the entry in the column “Value” with the following:

Zonal quality data acc. to 8.4.1.1

*Page 26, clause 8.4.1*

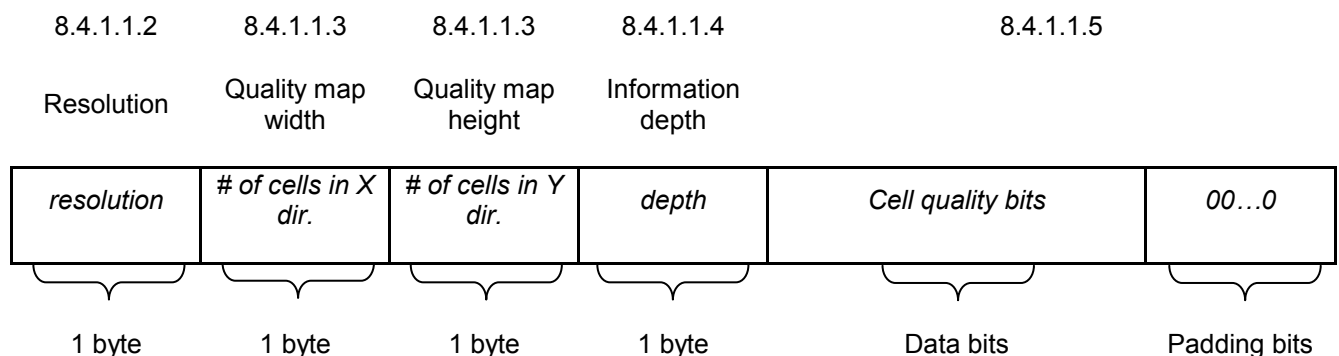
Add the following new subclauses before 8.4.2:

#### **8.4.1.1 Zonal Quality Data Modified for Finger Minutiae Card Formats**

##### **8.4.1.1.1 Zonal Quality Data Format Summary**

In the absence of a record header, for the finger minutiae card formats the image size in the X and Y directions is not provided; hence, the placement of the cells described in 7.5.4 is unknown. This information has to be provided in a modified header for the zonal quality data.

The figure below shows the structure of zonal quality data in the finger minutiae card formats without record header.



The first byte of the zonal quality data shall contain the resolution of the quality map in cells per decimetre. The next two bytes shall contain the number of cells in the quality map in the X and Y directions. The fourth byte gives the bit depth used for each cell. These header bytes shall be followed by the quality indication for each cell.

**8.4.1.1.2 Resolution of the Quality Map**

The resolution of the quality map shall be contained in one byte. This value will indicate the number of cells in the quality map per decimetre. The resolution shall be uniform in the X and Y directions. Permissible values are 20 to 255. The recommended value is 125 cells per decimetre.

**8.4.1.1.3 Number of Cells**

The number of cells in the X direction shall be stored in one byte. Permissible values are 1 to 255. The number of cells in the Y direction shall be stored in one byte. Permissible values are 1 to 255.

**8.4.1.1.4 Cell Quality Information Depth**

The bit depth of the cell quality information shall be contained in one byte. This value will indicate the number of bits per cell used to indicate the quality. Permissible values are 0, 1, 2, 4 and 8. With an information depth of 0, a rectangular image area of sufficient quality is defined by the width and height and the resolution of the quality map.

**8.4.1.1.5 Cell Quality Data**

Refer to 7.5.4.3 for the cell quality data.

*Page 27, Clause 9, Table 16*

Replace Table 16 with the following table:

**Table 16 — Format types**

<b>Format Type</b>	<b>Meaning</b>
'0001'	Finger minutiae record format – no extended data, with <ul style="list-style-type: none"> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0002'	Finger minutiae record format – extended data, with <ul style="list-style-type: none"> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0003'	Finger minutiae card format – normal size, with <ul style="list-style-type: none"> <li>– record header</li> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0004'	Finger minutiae card format – normal size, with <ul style="list-style-type: none"> <li>– record header</li> <li>– ridge skeleton end points</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0005'	Finger minutiae card format – compact size, without record header, with <ul style="list-style-type: none"> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0006'	Finger minutiae card format – compact size, without recorder header, with <ul style="list-style-type: none"> <li>– ridge skeleton end points</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0019'	Finger minutiae card format – compact size, with <ul style="list-style-type: none"> <li>– record header</li> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>

'0020'	Finger minutiae card format – compact size, with <ul style="list-style-type: none"> <li>– record header</li> <li>– ridge skeleton end points</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0021'	Finger minutiae card format – normal size, without record header, with <ul style="list-style-type: none"> <li>– ridge endings (valley skeleton bifurcation points)</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>
'0022'	Finger minutiae card format – normal size, without record header, with <ul style="list-style-type: none"> <li>– ridge skeleton end points</li> <li>– ridge bifurcations (ridge skeleton bifurcation points)</li> </ul>

Add the following notes after Table 16:

NOTE 1 The record format types '0001' and '0002' provide maximum information at the cost of storage capacity. They are suitable for general finger minutiae template storage and data interchange in application environments without strong restrictions on storage capacity.

NOTE 2 The card format types '0003', '0004', '0019', and '0020' with record header provide a size-reduced representation. They may be used for passive data carriers such as 2D-barcode cards. If the minutiae data is not embedded in a biometric information template as defined in ISO/IEC 19785-3:2007, Clause 11, information from the record header is important to an external comparison subsystem.

NOTE 3 The card format types '0005', '0006', '0021', and '0022' without record header provide a representation optimized and intended to be used for storage and comparison in a smart card chip. The record header information is not included because storing the fixed resolution and other data would be redundant. Parsing the format for semantic correctness in a smart card chip is simple due to the absence of any additional data not used for verification.

NOTE 4 TLV encoding according to ISO/IEC 19785-3 on the data transmission level is recommended for the card formats without record header. ISO/IEC 19785-3 encoding is optional for the card formats with record header.

*Page 37, D.1.1*

In paragraph 4, replace "CBEFF Annex G, Table G.1" with "ISO/IEC 19785-3:2007, Clause 11".