ISO/IEC 19794-2:2011-12 (E)

Information technology - Biometric data interchange formats - Part 2: Finger minutiae data

Contents

Page

Foreword vi

Introduction vii

1 Scope 1

2 Conformance 1

3 Normative references 2

4 Terms and definitions 2

5 Abbreviated terms 3

6 Minutiae extraction 3
6.1 Purpose 3
6.2 Minutia description 3
6.3 Minutia type 3
6.4 Minutia location 4
6.5 Minutiae direction 6
6.6 Core and delta placement 7
6.7 Encoding of multibyte quantities 7

7 Finger minutiae format types 8
7.1 Overview 8
7.2 Record format 8
7.3 On-card comparison format 8

8 Finger minutiae record format 9
8.1 Introduction 9
8.2 Record organization 9
8.3 General header 10
8.4 Finger minutiae representation format 11
8.5 Extended data 21

9 Finger minutiae on-card comparison format 29
9.1 Purpose 29
9.2 On-card comparison format 30
9.3 Number of minutiae and truncation 30
9.4 Minutiae order 32
9.5 Usage of extended data for the on-card comparison format 34

10 Registered format type identifiers 36

Annex A (normative) Conformance test methodology 37

Annex B (normative) Record format diagrams 38

Annex C (informative) Example data record 41

Annex D (informative) Handling of finger minutiae card formats 45

Annex E (normative) Capture device certifications 47

Annex F (normative) Detailed description of finger minutiae location, direction, and type 71

Bibliography 93

Figures

Figure 1 -- Coordinate system 4

Figure 2 -- Location and direction of a ridge ending (encoded as valley skeleton bifurcation point) ... 5

Figure 3 -- Location and direction of a ridge bifurcation (encoded as ridge skeleton bifurcation point) 5

Figure 4 -- Location and direction of a ridge skeleton endpoint 6

Figure 5 -- Example core and delta placement 8

Figure 6 -- Image quality layout 16

Figure 7 -- Example ridge count data 23

Figure 8 -- Eight-minutiae neighbourhood 24

Figure 9 -- Four-minutiae neighbourhood 25

Tables

Table 1 -- Format type options 9

Table 2 -- General header 10

Table 3 -- Finger minutiae representation format 12

Table 4 -- Extended data areas 15

Table 5 -- Capture device technology ID 16

Table 6 -- Identifiers for certification schemes specified in the annexes 18

Table 7 -- Finger position codes 19

Table 8 -- Finger impression codes 19

Table 9 -- Qualified finger minutia pixel record format 20

Table 10 -- Finger minutia pixel record format 21

Table 11 -- Extended data area type codes 22

Table 12 -- Ridge count extraction method codes 23

Table 13 -- Example ridge count data (non-specific extraction method, RCE method = 00Hex) 26

Table 14 -- On-card biometric comparison format 30

Table 15 -- DO Biometric comparison algorithm parameters 31

Table 16 -- Data object for number of minutiae 32

Table 17 -- Data object for minutiae order 32

Table 18 -- Values for minutiae order indication 32

Table 19 -- Biometric data template 35

Table 20 -- Encoding of feature handling indicator 36

Table 21 -- Format type identifiers 36

Table E.1 -- Preferred capture sizes 48

Table E.2 -- MTF Requirement using sine wave target 50

Table E.3 -- CTF Requirement using bar target (nominal test frequencies) 50

Table E.4 -- Basic requirements 55

Table E.5 -- CTF and MTF Requirements at nominal test frequencies 57

Table E.6 -- Minimum and maximum modulation 66

Table E.7 -- Dimensions of the target structures 67