

ISO/IEC 19795-7:2011-01 (E)

Information technology - Biometric performance testing and reporting - Part 7: Testing of on-card biometric comparison algorithms

Contents		Page
Foreword		vi
Introduction		vii
1	Scope	1
2	Conformance	2
3	Normative references	2
4	Terms and definitions	2
5	Abbreviations	2
6	Requirements on test planning	3
6.1	Fundamental concept of the test	3
6.2	Specification of interface hardware and software	4
6.3	Specification of the data formats	4
6.3.1	Format for comparison data	4
6.3.2	Format for off-card images and templates	4
6.4	Profiling of the BIT	4
6.5	Card-comparison subsystem combinations	4
6.6	Phased testing	5
6.7	Options for participation	5
6.8	Metrics	5
6.9	Comparison results	5
7	Requirements on test execution	6
7.1	General	6
7.2	Conditions for demonstrating equivalence of on-card and off-card algorithms	6
7.3	BIT Processing	6
7.4	Measurement of speed of execution	6
7.4.1	Quantities to be measured	6
7.4.2	Methods for measuring duration	7
7.4.3	Methods for measuring uncertainty	7
8	On-card biometric comparison interface specification	7
8.1	Overview	7
8.3	Establish Communications	8
8.4	Selection of the test application	8
8.5	Store enrollment template on the card	8
8.6	Read of the BIT	9
8.7	Use of the BIT	9
8.8	Verification	11
8.8.1	APDU specifications	11
8.8.2	Locking of the card	11
8.8.3	Locking of the PC-based algorithm	12
8.8.4	Comparison scores	12
8.8.5	Prohibition of stateful behavior	12
8.9	Reading card identifier	12
8.10	Reading comparison subsystem identifier	13

A.1	Background	14
A.1.1	Purpose	14
A.1.2	Overview	14
A.1.3	The record format	14
A.1.4	The compact-size format	15
A.2	Minutia uniqueness	16
A.3	Presence of BITs on card	17
A.4	Use of BITs	17
A.5	Number of minutiae	17
A.5.1	Limits on number	17
A.5.2	Effect of the BIT	18
A.5.3	Pruning mechanism	18
A.5.4	Pruning center	19
A.6	Sort order of minutiae	19
A.6.1	Support for ordering	19
A.6.2	Modulo sorting for large images	19
Annex B (informative) Standardized Finger-Position Codes		20
Annex C (informative) Example Material on Planning for a Test Plan		21
C.1	Purpose	21
C.2	PC-based API specification	21
C.2.1	Testing interface	21
C.2.2	Data format profile and conformance	21
C.2.3	Submission	21
C.2.4	Testing interface	21
C.2.5	Runtime behavior	23
Annex D (informative) API for Fingerprint Minutia Template Generation and Matching		24
D.1	Minutiae extraction	24
D.2	Minutiae matching	25
D.3	Implementation identifiers	25
Bibliography		26
Figures Tables Table 1 - Classes of participation		5
Table 2 - Command APDU for selection of on-card comparison application		8
Table 3 - Example Application ID		8
Table 4 - Response APDU from selection of comparison application		8
Table 5 - Command APDU for storage of reference template		8
Table 6 - Response APDU from storage of reference template		9
Table 7 - Command APDU for retrieval of biometric information template		9
Table 8 - Response APDU from retrieval of biometric information template		9
Table 10 - Command APDU for comparison of biometric templates		11
Table 11 - Response APDU from comparison of biometric templates		11
Table 12 - Command APDU for retrieval of verification comparison score		12
Table 13 - Response APDU for retrieval of verification comparison score		12

Table 14 - Command APDU for retrieval of Card identifier	12
Table 15 - Response APDU for retrieval of Card identifier	13
Table 16 - Command APDU for retrieval of Comparison subsystem identifier	13
Table 17 - Response APDU for retrieval of Comparison subsystem identifier	13
Table D.1 - API create_template function	25
Table D.2 - API match_templates function	25
Table D.3 - API get_pids function	25