INTERNATIONAL STANDARD

ISO/IEC 19794-2

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Information technology — Biometric data interchange formats —

Part 2: Finger minutiae data

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

Partie 2: Données du point caractéristique du doigt

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Contents

Page

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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.

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

ISO/IEC 19794 consists of the following parts, under the general title *Information technology — Biometric data interchange formats*:

— *Part 1: Framework*

— *Part 2: Finger minutiae data*

— *Part 3: Finger pattern spectral data*

— *Part 4: Finger image data*

— *Part 5: Face image data*

— *Part 6: Iris image data*

The following parts are under preparation:

— *Part 7: Signature/sign behavioral data*

— *Part 8: Finger pattern skeletal data*

Vascular image data, hand geometry silhouette data, and signature/sign processed dynamic data will from the subjects of future Parts 9, 10 and 11, respectively.

Introduction

In the interest of implementing interoperable biometric recognition systems, this part of ISO/IEC 19794 establishes a data interchange format for minutiae-based fingerprint capture and recognition equipment. Representation of fingerprint data using minutiae is a widely used technique in many application areas.

This part of ISO/IEC 19794 defines specifics of the extraction of key points (called *minutiae*) from fingerprint ridge patterns. Two types of data formats are then defined: one for general storage and transport, one for use in card-based systems; the card format has a standard and a compact expression.

Information technology — Biometric data interchange formats —

Part 2: Finger minutiae data

1 Scope

This part of ISO/IEC 19794 specifies a concept and data formats for representation of fingerprints using the fundamental notion of minutiae. It is generic, in that it may be applied and used in a wide range of application areas where automated fingerprint recognition is involved. This part of ISO/IEC 19794 contains definitions of relevant terms, a description of how minutiae shall be determined, data formats for containing the data for both general use and for use with cards, and conformance information. Guidelines and values for matching and decision parameters are provided in an informative annex.

2 Conformance

A system conforms to this part of ISO/IEC 19794 if it satisfies the mandatory requirements herein for extraction of minutiae from a fingerprint image as described in Clause 6 and the generation of a minutiae data format as described in Clause 7 (for general data interchange use) or Clause 8 (for use with cards). Since any finger minutiae extraction and matching algorithm supporting the described finger minutiae data interchange formats may be used, interoperability testing is of extreme importance, especially for environments in which components of different manufacturers interact. In ISO/IEC 19795 "Information technology - Biometric performance testing and reporting," test methodologies and performance testing of biometric data interchange formats are outlined. The application specific policies and relevant standards will determine the requirements for conformance testing and evaluation affecting levels of interoperability.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 7816-11:2004, *Identification cards — Integrated circuit cards — Part 11: Personal verification through biometric methods*

ISO/IEC 19784-1:—[1)], *Information technology — Biometric application programme interface — Part 1: BioAPI specification*

ISO/IEC 19785-1:—[1)], *Information technology — Common Biometric Exchange Formats Framework — Part 1: Data element specification*

ISO/IEC 19785-2:—[1)], *Information technology — Common Biometric Exchange Formats Framework — Part 2: Procedures of the operation of the Biometric Registration Authority*

1) To be published.