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**Information technology — Biometric  
System-on-Card —**

**Part 1:  
Core requirements**

*Technologies de l'information — Système biométrique sur carte —  
Partie 1: Exigences de base*



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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The Committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

ISO/IEC 17839 consists of the following parts, under the general title *Information technology — Biometric System-on-Card*:

- *Part 1: Core requirements*
- *Part 2: Physical characteristics*
- *Part 3: Logical information interchange mechanism*

## Introduction

In the context of this International Standard, a *Biometric System-on-Card* is a portable card size device including the following entities: biometric acquisition, data processing, storage, comparison, decision. It is a functional extension to *on-card biometric comparison* by physically and logically integrating the sensor and signal processing into the card.

ISO/IEC 7816-11,<sup>[1]</sup> ISO/IEC 19785-3,<sup>[2]</sup> ISO/IEC 19795-7<sup>[3]</sup> and ISO/IEC 24787 include technologies with respect to biometric on-card comparison. The Biometric System-on-Card is not yet covered sufficiently. Industry requires a new International Standard for a fully self-contained Biometric System-on-Card to enable interoperability and define minimum quality criteria allowing reliable operation of such a system.

The physical integration of a biometric sensor in an ISO/IEC 7810 card withstanding torsion and bending tests is technically challenging. This International Standard describes two types of Biometric System-on-Card. Type S1 is a fully flexible card compliant with ISO/IEC 7810 while type S2 intentionally deviates from some of the requirements to size and flexibility, keeping the rest of the requirements intact, including the use of a contactless ICC interface.

# Information technology — Biometric System-on-Card —

## Part 1: Core requirements

### 1 Scope

This part of ISO/IEC 17839 establishes

- functional architecture of a Biometric System-on-Card
- definition of type S1 (fully ISO/IEC 7810 compliant) and type S2 implementation of a Biometric System-on-Card
- sensor types in a Biometric System-on-Card
- minimum requirements to a Biometric System-on-Card with respect to
  - discriminative power (i.e. biometric accuracy criteria)
  - interfaces
  - power supply options

The following aspects are out of scope of this International Standard:

- off-card biometric comparison, storage-on-card
- work-load sharing implementations
- detailed specification and configuration of individual components

This part of ISO/IEC 17839 provides a functional architectural description of a Biometric System-on-Card and describes how the interfaces are mapped using existing commands and data structures from other International Standards.

### 2 Normative references

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

ISO/IEC 2382-37, *Information technology — Vocabulary — Part 37: Biometrics*

ISO/IEC 7810, *Identification cards — Physical characteristics*

ISO/IEC 7816-1, *Identification cards — Integrated circuit cards — Part 1: Cards with contacts — Physical characteristics*

ISO/IEC 7816-3, *Identification cards — Integrated circuit cards — Part 3: Cards with contacts — Electrical interface and transmission protocols*

ISO/IEC 7816-12, *Identification cards — Integrated circuit cards — Part 12: Cards with contacts — USB electrical interface and operating procedures*

ISO/IEC 14443, *Identification cards — Contactless integrated circuit cards — Proximity cards*

ISO/IEC 15693, *Identification cards — Contactless integrated circuit cards — Vicinity cards*

ISO/IEC 24787, *Information technology — Identification cards — On-card biometric comparison*