INTERNATIONAL STANDARD

ISO/IEC 15693-1

Third edition
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Cards and security devices for personal identification — Contactless vicinity objects —

Part 1: Physical characteristics

Cartes et dispositifs de sécurité pour l'identification personnelle — Objets sans contact de voisinage — Partie 1: Caractéristiques physiques

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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).

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).

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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/IEC JTC 1, *Information technology*, SC 17, *Cards and security devices for personal identification*.

This third edition cancels and replaces the second edition (ISO/IEC 15693-1:2010), which has been technically revised.

The main changes from the previous edition are:

— It incorporates changes to subclauses 3.2, 3.3 and 3.5 to bring the vicinity card into line with the proximity card;

— Annex B has been amended to remove the mandated positions of access control card slot holes.

A list of all the parts in the ISO 15693 series can be found on the ISO website.

Introduction

Contactless card standards encompass a variety of types as embodied in the ISO/IEC 10536 series (close-coupled cards), the ISO/IEC 14443 series (proximity cards) and the ISO/IEC 15693 series (vicinity cards). These device types are intended, respectively, for operation when very near, nearby and at a longer distance from associated coupling devices.

The ISO/IEC 15693 series defines the technology-specific requirements for identification cards conforming to ISO/IEC 7810 and thin flexible cards conforming to ISO/IEC 15457-1, and the use of such cards to facilitate international interchange. However, it also recognizes that the technology offers the possibility that vicinity objects be provided in forms other than that of the International Standard card formats. Furthermore, it does not preclude the incorporation of other standard technologies on the card, such as those referenced in the Bibliography.

The ISO/IEC 15693 series accommodates the operation of vicinity cards in the presence of other contactless cards conforming to the ISO/IEC 10536 series and the ISO/IEC 14443 series.

This document does not preclude the application to the vicinity card (VICC) of other existing card technology standards, such as those listed in the Bibliography.

Cards and security devices for personal identification — Contactless vicinity objects —

Part 1: Physical characteristics

1 Scope

This document defines the physical characteristics of vicinity cards (VICCs). It is intended to be used in conjunction with other parts of the ISO/IEC 15693 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7810, *Identification cards — Physical characteristics*

ISO/IEC 15457-1, *Identification cards — Thin flexible cards — Part 1: Physical characteristics*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 7810, ISO/IEC 15457-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
integrated circuit
IC
electronic component designed to perform processing and/or memory functions

3.2
contactless
achievement of signal exchange with the card without the use of galvanic elements

Note 1 to entry: Power may be supplied to the card without galvanic elements or with a battery. (i.e. the absence of an ohmic path from the external interfacing equipment to the integrated circuit contained within the card).

3.3
contactless integrated circuit card
ID-1 card type into which integrated circuit(s) and coupling means have been placed and in which communication to such integrated circuit(s) is done by inductive coupling in the vicinity of a coupling device

3.4
operate as intended
operate in the manner described by the manufacturer's specification in accordance with ISO/IEC 15693

3.5
vicinity integrated circuit card
VICC
contactless integrated circuit card or other object with which communication and typically power transfer is done by inductive coupling in the vicinity of a coupling device

4 Physical characteristics

4.1 General

The VICC may be in the form of a card in conformance with ISO/IEC 7810 or ISO/IEC 15457-1, or an object of any other dimension.

4.2 Antenna

If the VICC dimensions are in conformance with ISO/IEC 7810 or ISO/IEC 15457-1, the dimensions of the VICC antenna shall not exceed 86 mm × 54 mm × 3 mm in order to maximize interoperability.

NOTE This antenna size restriction stems from the fact that the radio frequency power and signal interface defined in ISO/IEC 15693-2 and its test methods in ISO/IEC 10373-7 are based on ID-1 cards. The test methods can give unreliable results with antennas larger than that defined above.

4.3 Alternating magnetic field

The VICC, whichever form the VICC has according to 4.1, shall continue to operate as intended after continuous exposure to a magnetic field of an average level of 10 A/m rms at 13,56 MHz. The averaging time is 30 seconds and the maximum level of the magnetic field is limited to 12 A/m rms.

4.4 Additional information

Surface quality for printing is discussed in Annex A.

When a hole or slot is implemented refer to Annex B.

Annex A
(informative)

Surface quality for printing

Where there is a requirement to customize the VICC after the manufacturing process by overprinting, care should be taken to ensure the areas used for printing are of sufficient quality appropriate to the printing technique or printer used.