INTERNATIONAL STANDARD

ISO/IEC 7811-8

Second edition
2014-12-01

Identification cards — Recording technique —

Part 8: Magnetic stripe — Coercivity of 51,7 kA/m (650 Oe)

Cartes d'identification — Technique d'enregistrement —
Partie 8: Zone magnétique — Coercivité de 51,7 kA/m (650 Oe)

Reference number
ISO/IEC 7811-8:2014(E)

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Published in Switzerland

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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.

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 7811 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, SC 17, *Cards and personal identification*.

This second edition cancels and replaces the first edition (ISO/IEC 7811-8:2008), which has been technically revised. Major changes from the first edition are as follows:

— The primary standard cards held by Q-Card are used to calibrate the manufacture of secondary reference cards. Other primary standard cards held by PTB and Card testing International (CTI) are used as backup to replace cards held by Q-Card as they wear out.

— The supplier of secondary reference cards has changed from PTB to Q-Card.

ISO/IEC 7811 consists of the following parts, under general title *Identification cards — Recording technique*:

— *Part 1: Embossing*

— *Part 2: Magnetic stripe — Low coercivity*

— *Part 6: Magnetic stripe — High coercivity*

— *Part 7: Magnetic stripe — High coercivity, high density*

— *Part 8: Magnetic stripe — Coercivity of 51,7 kA/m (650 Oe)*

— *Part 9: Tactile identifier mark*

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Introduction

This part of ISO/IEC 7811 is similar to ISO/IEC 7811-2, except that its higher coercivity requires higher energy to encode the data. The user of ISO/IEC 7811-8 is encouraged to review the entire standard for revisions and updates. The major differences from ISO/IEC 7811-2 are listed below.

— In terms of coercivity, this part of ISO/IEC 7811 media (51,7 kA/m, 650 Oe) is between ISO/IEC 7811-2 (23,9 kA/m, 300 Oe) and ISO/IEC 7811-6 (minimum 199 kA/m, 2 500 Oe).

— The primary application for 51,7 kA/m (650 Oe) is for hotel guest room entry systems worldwide.

— For Table 1 values, this part of ISO/IEC 7811 specifies different values for I_{min} (6,5 FR) and I_{max} (8 FR).

— Encoding techniques, specification, and error detection are not specified in this part of ISO/IEC 7811.

— Wherever possible, the same definitions, criteria, and test methods are used in ISO/IEC 7811-2, ISO/IEC 7811-6, and this part of ISO/IEC 7811.

Notes in this part of ISO/IEC 7811 are only used for giving additional information intended to assist understanding or use, and do not contain provisions or requirements to which it is necessary to conform in order to be able to claim compliance with this part of ISO/IEC 7811.

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Identification cards — Recording technique —

Part 8:
Magnetic stripe — Coercivity of 51,7 kA/m (650 Oe)

1 Scope

This International Standard defines the characteristics for identification cards as defined in Clause 4 of this part of ISO/IEC 7811, and the use of such cards for international interchange.

This part of ISO/IEC 7811 specifies requirements for a 51,7 kA/m (650 Oe) magnetic stripe (including any protective overlay) on an identification card. The encoding technique and coded character sets are not defined, however, the specifications of ISO/IEC 7811-2 may be used. It takes into consideration both human and machine aspects and states minimum requirements.

Coercivity influences many of the quantities specified in this part of ISO/IEC 7811. It has a nominal value of 51,7 kA/m (650 Oe), but is not itself specified. Exposure of the card to a magnetic field is likely to destroy the recorded data.

This International Standard provides criteria to which cards are to perform. No consideration is given within this International Standard to the amount of use, if any, experienced by the card prior to test. Failure to conform to specified criteria is negotiated between the involved parties.

ISO/IEC 10373-2 specifies the test procedures used to check cards against the parameters specified in this part of ISO/IEC 7811.

Numeric values in the SI and/or Imperial measurement system in this part of ISO/IEC 7811 may have been rounded off and therefore are consistent with, but not exactly equal to, each other. Either system may be used, but the two are not to be intermixed or reconverted. The original design was made using the Imperial measurement system.

2 Conformance

A prerequisite for conformance with this part of ISO/IEC 7811 is conformance with ISO/IEC 7810. An identification card is in conformance with this part of ISO/IEC 7811 if it meets all mandatory requirements specified herein. Default values apply if no others are specified.

3 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 4287, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters*

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

ISO/IEC 10373-1, *Identification cards — Test methods — Part 1: General characteristics*

ISO/IEC 10373-2, *Identification cards — Test methods — Part 2: Cards with magnetic stripes*

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4 Terms and definitions

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

4.1
primary standard
set of reference cards established by Physikalisch-Technische Bundesanstalt (PTB) and maintained by PTB, Q-Card, and WG1 secretariat that represent the values of U_R and I_R designated RM7811-2

4.2
secondary standard
reference card designated RM7811-2 that is related to the primary standard as stated in the calibration certificate supplied with each card

Note 1 to entry: Secondary standards can be ordered from Q-Card, 301 Reagan St., Sunbury, PA 17801, USA. The source of secondary standards will be maintained at least until 2018.

4.3
unused un-encoded card
card possessing all the components required for its intended purpose, which has not been subjected to any personalization or testing operation, and which has been stored in a clean environment with no more than 48 h exposure to daylight at temperatures between 5 °C and 30 °C and humidity between 10 % and 90 % without experiencing thermal shock

4.4
unused encoded card
card according to 4.3 that has only been encoded with all the data required for its intended purpose (e.g. magnetic encoding, embossing, electronic encoding)

4.5
returned card
card according to 4.4 after it has been issued to the card holder and returned for the purpose of testing

4.6
flux transition
location of the greatest rate of change with distance of the magnetization

4.7
reference current
I_R
minimum recorded current amplitude under the given test conditions that causes, on the reference card, a readback signal amplitude equal to 80 % of the reference signal amplitude, U_R, at a density of 8 flux transitions/mm (200 flux transitions/in) as shown in Figure 6

4.8
reference flux level
F_R
flux level in the test head that corresponds to the reference current, I_R

4.9
test recording currents
two recording currents specific to 51,7 kA/m (650 Oe) media defined by

I_{min} = recording current corresponding to 6,5 F_R

I_{max} = recording current corresponding to 8,0 F_R

4.10
individual signal amplitude
U_i
base-to-peak amplitude of a single readback voltage signal

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