

Identification cards — Thin flexible cards —

Part 2: Magnetic recording techniques

ICS 35.240.15

National foreword

This British Standard reproduces verbatim ISO/IEC 15457-2:2001 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee IST/17, Cards and Personal Identification, which has the responsibility to:

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- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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 part of ISO/IEC 15457 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 15457-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices*.

ISO/IEC 15457 consists of the following parts, under the general title *Identification cards — Thin flexible cards*:

- *Part 1: Physical characteristics*
- *Part 2: Magnetic recording techniques*
- *Part 3: Test methods*

Annexes A and B form a normative part of this part of ISO/IEC 15457.

Identification cards — Thin flexible cards —

Part 2: Magnetic recording techniques

1 Scope

Thin flexible cards, the subject of this International Standard, are used to automate the controls for access to goods or services such as mass transit, highway toll systems, car parks, vouchers, stored value, etc.

For these applications, data can be written and/or read by machines using various recording techniques such as magnetic stripe, optical character recognition (OCR), bar code, etc.

This part of ISO/IEC 15457 specifies the magnetic stripe and encoding characteristics of thin flexible cards at two points in the card life cycle:

1. at the point of loading into the card issuing equipment;
2. at the point of issue to the public.

Guidance concerning the storage and usage of finished cards (including magnetic stripe cards) under various environmental conditions is given in ISO/IEC 15457-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15457. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 15457 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 4287-1, *Surface roughness — Terminology — Part 1: Surface and its parameters*

ISO 4287-2, *Surface roughness — Terminology — Part 2: Measurement of surface roughness parameters*

ISO/IEC 7811-2, *Identification cards — Recording technique — Part 2: Magnetic stripe — Low coercivity*

ISO/IEC 7811-6, *Identification cards — Recording technique — Part 6: Magnetic stripe — High coercivity*

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

ISO/IEC 15457-3, *Identification cards — Thin flexible cards — Part 3: Test methods*

IEC 60050-221, *International Electrotechnical Vocabulary — Chapter 221: Magnetic materials and components*

3 Terms and definitions

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

3.1

track

area of stripe surface occupied by the data encoded by a single channel of the magnetic recording write/read interface

3.2

central stripe

stripe centred on the widthwise axis of the card

3.3

lateral stripe

any widthwise stripe which is not centred on the widthwise axis of the card

3.4

re-usable card

durable card able to be recovered from the field (generally by automatic equipment operation) and re-issued

3.5

unused, unencoded card

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

3.6

unused encoded card

card according to 3.11 that has only been encoded with all the data required for its intended purpose (e.g. magnetic encoding, printing etc.)¹

3.7

returned card

card according to 3.12 after it has been issued to the card holder and returned for the purpose of testing (e.g. re-usable card returned for possible re-issue)²

3.8

R_a, R_z

measures of surface irregularity [see ISO 4287]

3.9

maximum field

H_{max}

maximum absolute magnetic field strength applied as described by the test method [ISO/IEC 7811-6]

3.10

coercivity

$H_{CM} = H_{CJ}$

continuously applied magnetic field which reduces the magnetisation to zero from a previous maximum magnetisation state in the opposite direction, the quantity of interest being that which is measured parallel to the longitudinal axis of the stripe [ISO/IEC 7811-6]

¹ The definitions used in ISO/IEC 7811 refer to embossing and electronic encoding which are not defined in ISO/IEC 15457. However, printing on issue (as opposed to pre-printing) frequently accompanies magnetic encoding in applications of thin flexible cards.

² In certain applications of thin flexible cards, the purpose of testing returned cards is to establish their suitability to be re-issued for re-use. Such testing is generally done automatically by bulk sorter/encoder equipment.