INTERNATIONAL STANDARD

ISO/IEC 10536-2

First edition
1995-12-15

Identification cards — Contactless integrated circuit(s) cards —

Part 2:
Dimensions and location of coupling areas

Cartes d'identification — Cartes à circuit(s) intégré(s) sans contact —
Partie 2: Dimensions et emplacement des surfaces de couplage

Reference number
ISO/IEC 10536-2:1995(E)

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Foreword

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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.

International Standard ISO/IEC 10536-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices*.

ISO/IEC 10536 consists of the following parts, under the general title *Identification cards — Contactless integrated circuit(s) cards*:

— *Part 1: Physical characteristics*

— *Part 2: Dimensions and location of coupling areas*

— *Part 3: Electronic signals and reset procedures*

Annexes A to C of this part of ISO/IEC 10536 are for information only.

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Identification cards — Contactless integrated circuit(s) cards —

Part 2:
Dimensions and location of coupling areas

1 Scope

This part of ISO/IEC 10536 specifies the dimensions, location, nature and assignment of each of the coupling areas to be provided for interfacing slot or surface card coupling devices (CCDs) with contactless integrated circuit(s) cards (CICCs) of the ID-1 card type.

This part of ISO/IEC 10536 does not specify:

The dimensions, location and assignment of coupling elements on the CICC;

The dimensions, location and assignment of coupling elements on the CCD;

The means of generating coupling fields.

This part of ISO/IEC 10536 is to be used in conjunction with ISO/IEC 10536-1.

Annex A shows the determination of the X and Y axes which are used in relating the field locations to the CICC.

Annex B shows examples of coupling elements in both a CICC and a CCD.

The dimensions used throughout this part of ISO/IEC 10536 are shown as nominal and expressed in millimetres; the figures shown are not drawn to scale.

NOTE 1 Other types of contactless integrated circuit(s) cards, formats or interfaces, which offer a variety of operating distances, may be developed in the future, which will call for additions to be made to this part of ISO/IEC 10536 or, will require other International Standards to be prepared.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10536. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this part of ISO/IEC 10536 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 7810: 1995, *Identification cards - Physical characteristics.*

ISO/IEC 10536-1: 1992, *Identification cards - Contactless integrated circuit(s) cards - Part 1: Physical characteristics.*

3 Definitions, abbreviations and symbols

3.1 Definitions

For the purposes of this part of ISO/IEC 10536, the definitions given in ISO/IEC 10536-1 and the following definitions apply.

3.1.1. inductive coupling area

An area through which there is a prescribed concentration of magnetic flux that positively contributes to the driving of the coupling element.

3.1.2 capacitive coupling area

An area through which capacitive coupling between a CICC and a CCD may occur.

3.2 Abbreviations

3.2.1 CICC

Contactless Integrated Circuit(s) Card as defined in ISO/IEC 10536-1.

3.2.2 CCD

Card Coupling Device as defined in ISO/IEC 10536-1.

3.3 Symbols

3.3.1 ID-1 As defined in ISO/IEC 7810

3.3.2 X As defined in annex A

3.3.3 Y As defined in annex A

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4 Dimensions of coupling areas

4.1 Inductive coupling areas

Each area shall have dimensions in millimetres as shown in figure 1.

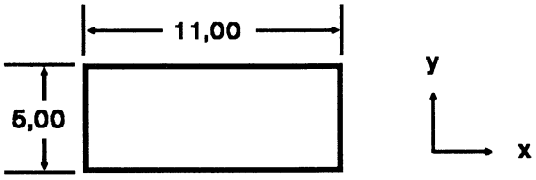

Figure 1

4.2 Capacitive coupling areas

Each area shall have dimensions in millimetres as shown in figure 2.

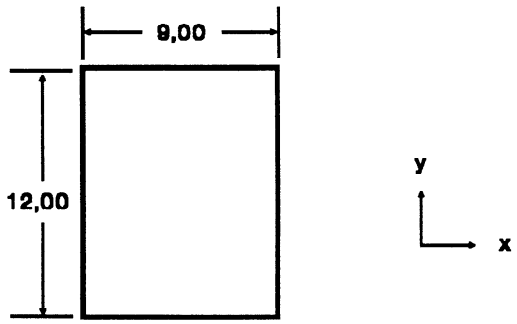

Figure 2

5 Number and location of the coupling areas

This part of ISO/IEC 10536 defines eight coupling areas of dimensions shown in figures 1 and 2, four of which are inductive coupling areas referred to as H1 to H4 of dimensions shown in figures 1 and 3, and a further four are capacitive coupling areas of dimensions shown in figure 2 referred to as E1 to E4.

The CICC does not have to use all of the coupling areas shown. The CCD shall be capable of using all the coupling areas shown. The use of these coupling areas will be defined in ISO/IEC 10536-3.

5.1 Location of inductive coupling areas

The location of the centres of the four inductive coupling areas is shown in figure 3.

Dimensions in millimetres

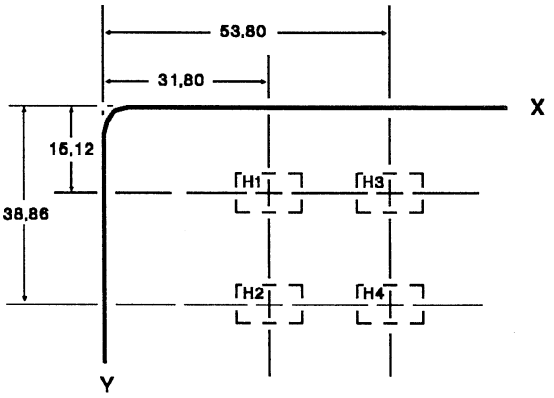

Figure 3

5.2 Location of capacitive coupling areas

The location of the centres of the four capacitive coupling areas is shown in figure 4.

Dimensions in millimetres

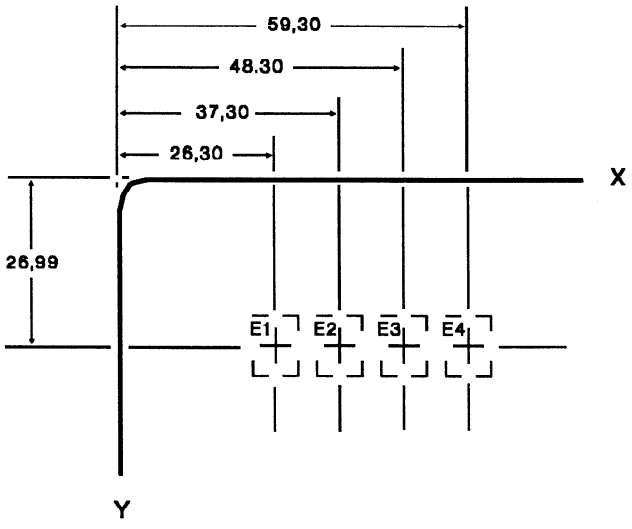

Figure 4

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Annex A
(informative)

Determination of X and Y axes - methods of measurement

This annex relates the axes used for field locations to the CICC.

Construct two perpendicular axes of reference X and Y intersecting at O. Mark three reference points on the axes: points P2 and P3, measured 11,25 mm and 71,25 mm from O, shall be marked on the X axis and point P1, 27,00 mm from O on the Y axis. Place the card so that the top edge touches points P2 and P3 and the left edge touches at P1 (see figure A.1)

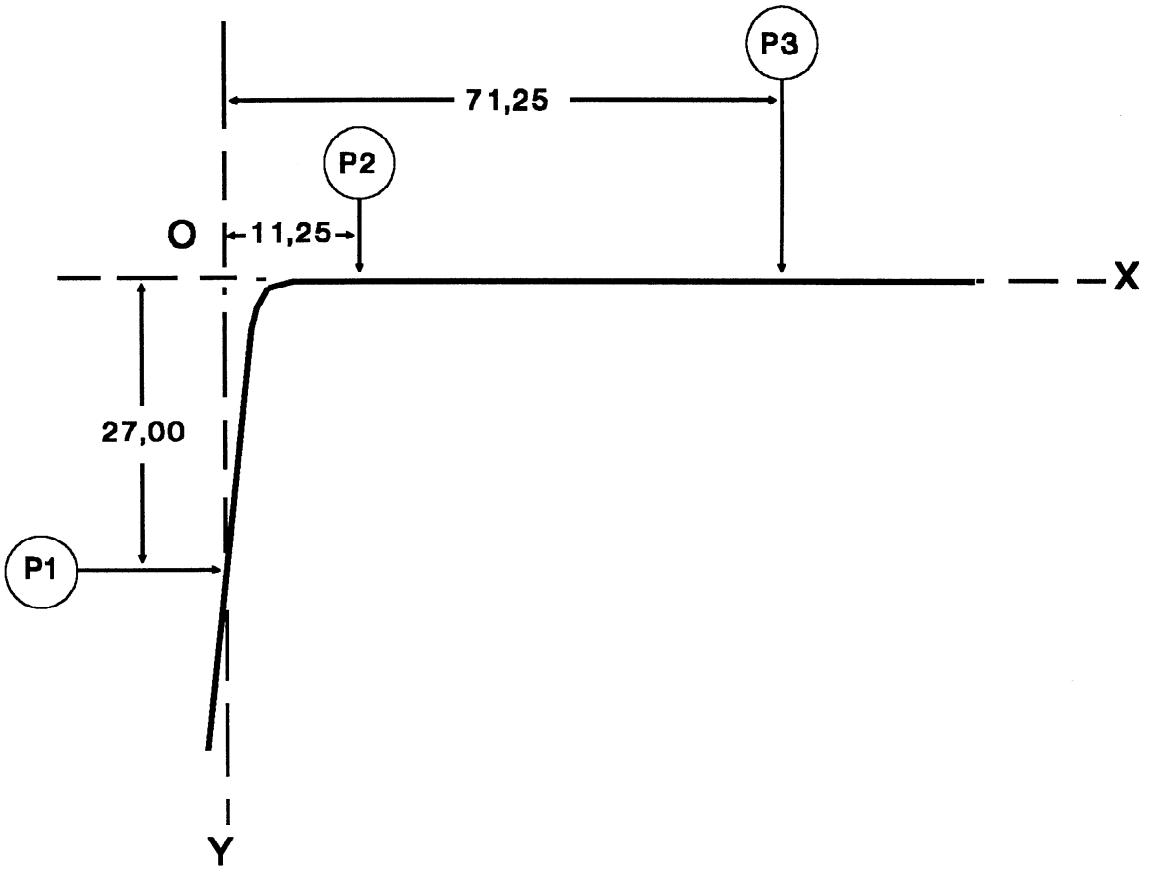

Figure A.1

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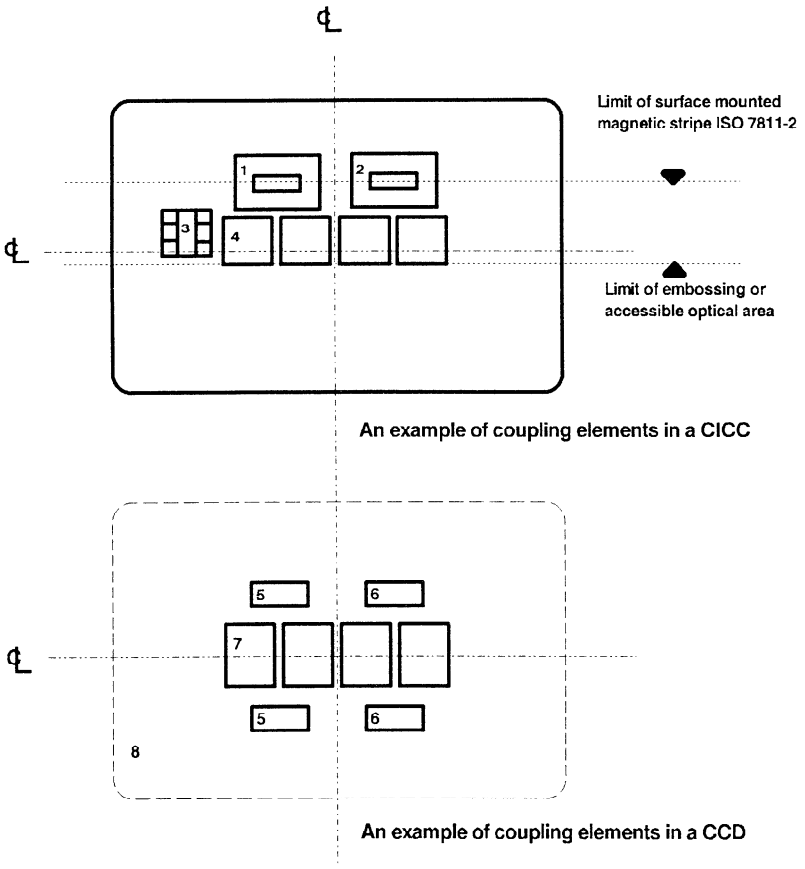
Annex B
(informative)

Examples of coupling elements in both a CICC and a CCD

Examples of coupling elements and options are shown in figures B.1 and B.2.

A coupling element is defined as: A physical structure in the CCD or CICC that generates or intercepts either an electric or magnetic field.



Key

1. Coupling coil 1
2. Coupling coil 2
3. Contacts (Surface) (ISO/IEC 7816-2)
4. CICC capacitor plates
5. Coil and U core 1
6. Coil and U core 2
7. CCD capacitor plates
8. Outline of CICC when placed in CCD. A CICC when placed within this outline has four possible orientations.

NOTES

1 This example does not preclude the use of large coils for remote coupling.

2 The CICC does not have to include all of the coupling elements shown.

Figure B.1 - An example of coupling elements in both a CICC and a CCD

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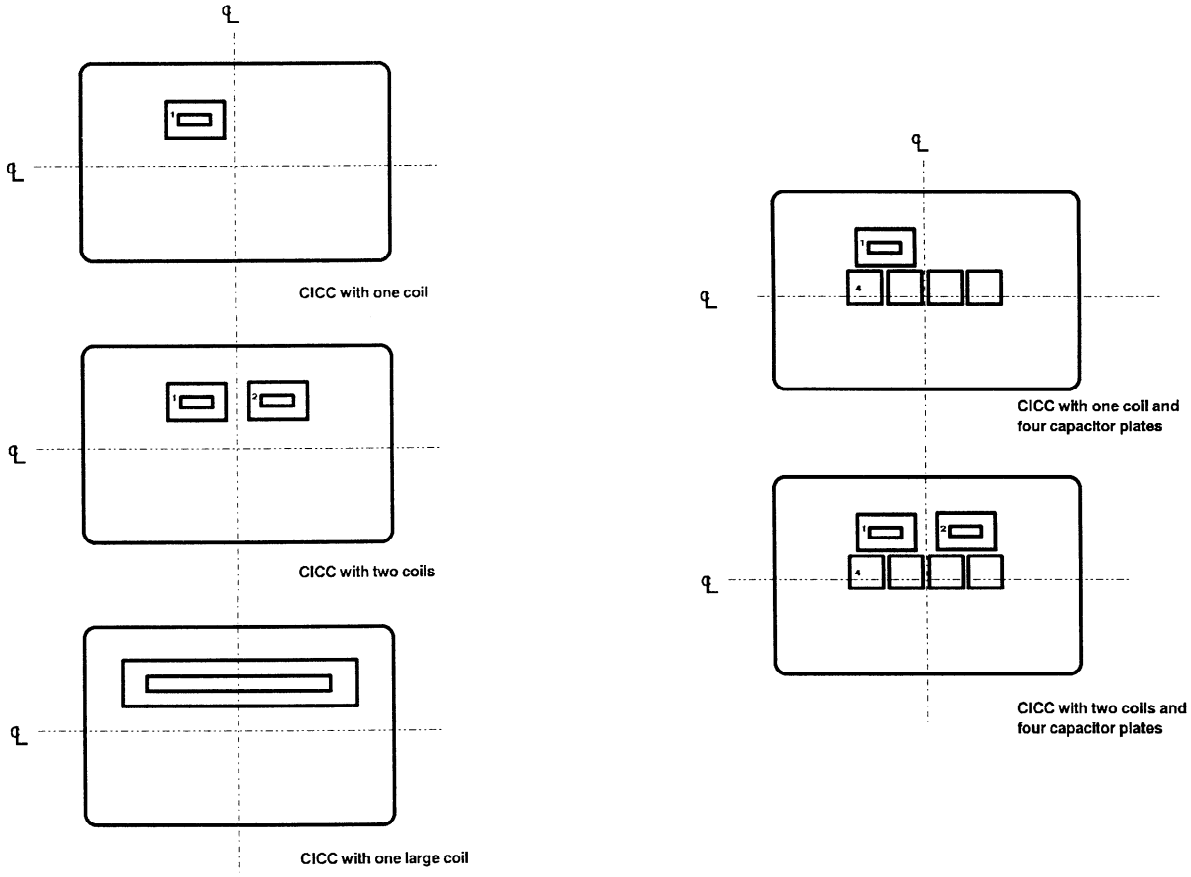

Figure B.2 - Examples of coupling element options in a CICC

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Annex C
(informative)

Bibliography

ISO/IEC 7811-1:1995, *Identification cards - Recording technique - Part 1: Embossing.*

ISO/IEC 7811-2: 1995, *Identification cards - Recording technique - Part 2: Magnetic stripe.*

ISO/IEC 7811-3: 1995, *Identification cards - Recording technique - Part 3: Location of embossed characters on ID-1 cards.*

ISO/IEC 7811-4: 1995, *Identification cards - Recording technique - Part 4: Location of read-only magnetic tracks - Tracks 1 and 2.*

ISO/IEC 7811-5: 1995, *Identification cards - Recording technique - Part 5: Location of read-write magnetic track - Track 3.*

ISO/IEC 7812-1: 1993, *Identification cards - Identification of issuers - Part 1: Numbering system.*

ISO/IEC 7812-2: 1993, *Identification cards - Identification of issuers - Part 2: Application and registration procedures.*

ISO/IEC 7813: 1995, *Identification cards - Financial transaction cards.*

ISO/IEC 7816-1: 1987, *Identification cards - Integrated circuit(s) cards with contacts - Part 1: Physical characteristics.*

ISO/IEC 7816-2: 1988, *Identification cards - Integrated circuit(s) cards with contacts - Part 2: Dimensions and location of the contacts.*

ISO/IEC 10536-3: -[1], *Identification cards - Contactless integrated circuit(s) cards - Part 3: Electronic signals and reset procedures.*

[1] To be published.

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