
**Information technology — Identification
cards — Integrated circuit(s) cards with
contacts —**

**Part 2:
Dimensions and location of the contacts**

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*Technologies de l'information — Cartes d'identification — Cartes à circuit(s)
intégré(s) à contacts*

Partie 2: Dimensions et emplacements des contacts

ISO/IEC 7816-2:1999

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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. 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 7816-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices*.

This first edition cancels and replaces ISO 7816-2:1988, which has been technically revised.

ISO/IEC 7816 consists of the following parts, under the general title *Information technology — Identification cards — Integrated circuit(s) cards with contacts*:

- Part 1: *Physical characteristics*
- Part 2: *Dimensions and location of the contacts*
- Part 3: *Electronic signals and transmission protocols*
- Part 4: *Interindustry commands for interchange*
- Part 5: *Numbering system and registration procedure for application identifiers*
- Part 6: *Interindustry data elements*
- Part 7: *Interindustry commands for structured card query language*
- Part 8: *Security related interindustry commands*
- Part 9: *Additional interindustry commands and security attributes*
- Part 10: *Electronic signals and answer to reset for synchronous cards*

Annexes A and B of this part of ISO/IEC 7816 are for information only.

Introduction

This part of ISO/IEC 7816 is one of a series of standards describing the parameters for integrated circuit(s) cards with contacts and the use of such cards for international interchange.

These cards are identification cards intended for information exchange negotiated between the outside and the integrated circuit in the card. As a result of an information exchange, the card delivers information (computation results, stored data), and/or modifies its content (data storage, event memorization).

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Information technology — Identification cards — Integrated circuit(s) cards with contacts —

Part 2: Dimensions and location of the contacts

1 Scope

This part of ISO/IEC 7816 specifies the dimensions, locations and assignment for each of the contacts on integrated circuit(s) cards of an ID-1 card type.

This part of ISO/IEC 7816 is to be used in conjunction with ISO/IEC 7816-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 7816. 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 7816 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 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 7816-1:1998, *Identification cards — Integrated circuit(s) cards with contacts — Part 1: Physical characteristics*.

ISO/IEC 10373:1993, *Identification cards — Test methods*.

3 Dimensions of the contacts

The shape and the surface of the conductive zones which include each contact are not defined in this part of ISO/IEC 7816.

Each contact shall have a minimum rectangular surface area not less than the dimensions specified in figure 1.

This part of ISO/IEC 7816 does not define the maximum dimensions or shape of the contacts except for the requirement that each contact shall be electrically isolated from the other contacts.

Dimensions in millimetres

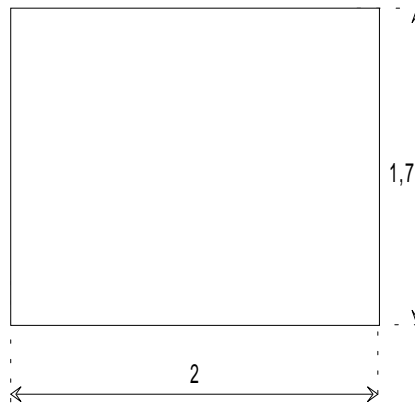


Figure 1 — Minimum dimensions of the contacts

4 Number and location of the contacts

This part of ISO/IEC 7816 defines eight contacts referred to as C1 to C8.

The contacts are located as shown in figure 2.

The contacts shall be located on the front of the card (see annex A). The dimensions are referenced to the left and upper edges of the front surface of the card.

See ISO/IEC 10373 for the test method.

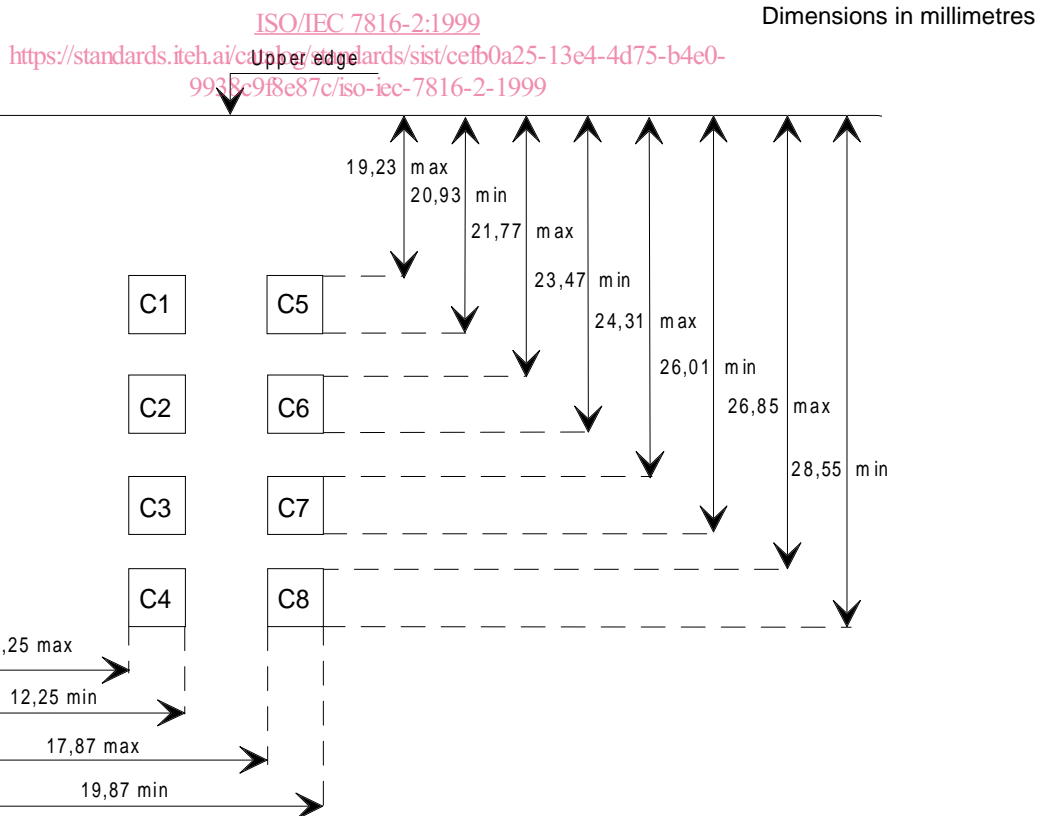


Figure 2 — Location of the contacts

5 Assignment of the contacts

Each numbered contact shall be assigned as specified in table 1.

Unused contact areas shall be either non-conductive or electrically isolated from any other contact area in order to avoid potential short circuit in interface devices.

It is recommended that electrical isolation is provided according to annex B.

Table 1 — Assignment of the contacts

Contact No.	Assignment	Contact No.	Assignment
C1	VCC (Supply voltage)	C5	GND (Ground)
C2	RST (Reset signal)	C6	VPP Variable supply voltage (e.g. programming voltage)
C3	CLK (Clock signal)	C7	I/O (Data input/output)
C4	Reserved for future use in other parts of ISO/IEC 7816	C8	Reserved for future use in other parts of ISO/IEC 7816

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Annex A (informative)

Location of contacts relative to other technologies

Embossing (ISO/IEC 7811-1) when present, is located on the same side as the contacts. Magnetic stripe (ISO/IEC 7811-2), when present, is located on the opposite side. See figure A.1.

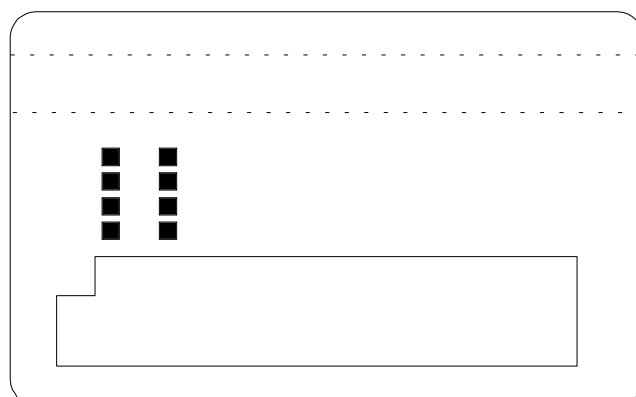


Figure A.1 — Front side of the card

[ISO/IEC 7816-2:1999](https://standards.iteh.ai/catalog/standards/sist/cefb0a25-13e4-4d75-b4e0-9938c9f8e87c/iso-iec-7816-2-1999)

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Annex B (informative)

Location of possible conductive zones

Up to 1990, a transitional position of the contact was defined in ISO/IEC 7816. As a result, terminals were deployed which accept cards with contacts in either position. The purpose of this annex is to highlight this fact and allow manufacturers (essentially card manufacturers) to take this into account. In this respect, the electrical isolation of zones Zx (x=1...8) should be provided.

Dimensions in millimetres

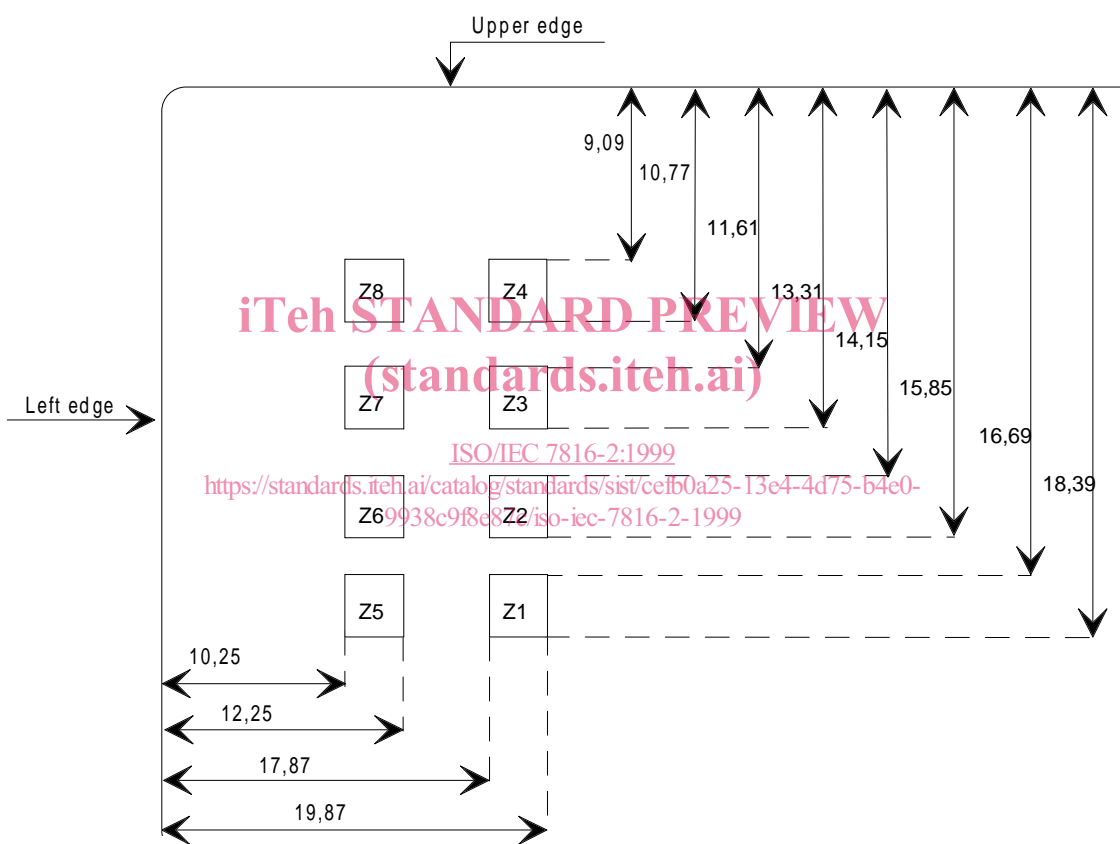


Figure B.1 — Location of possible conductive zones