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Identification cards — Integrated circuit cards —

Part 12: Cards with contacts — USB electrical interface and operating procedures

Cartes d'identification — Cartes à circuit intégré —

Partie 12: Cartes à contacts — Interface électrique USB et procédures de fonctionnement

Reference number
ISO/IEC 7816-12:2005(E)



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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 7816-12 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

ISO/IEC 7816 consists of the following parts, under the general title *Identification cards — Integrated circuit cards*:

- *Part 1: Cards with contacts — Physical characteristics*
- *Part 2: Cards with contacts — Dimensions and location of the contacts*
- *Part 3: Cards with contacts — Electrical interface and transmission protocols*
- *Part 4: Organization, security and commands for interchange*
- *Part 5: Registration of application providers*
- *Part 6: Interindustry data elements for interchange*
- *Part 7: Interindustry commands for Structured Card Query Language (SCQL)*
- *Part 8: Commands for security operations*
- *Part 9: Commands for card management*
- *Part 10: Cards with contacts — Electronic signals and answer to reset for synchronous cards*
- *Part 11: Personal verification through biometric methods*
- *Part 12: Cards with contacts — USB electrical interface and operating procedures*
- *Part 15: Cryptographic information application*

ISO/IEC 10536^[2] specifies access by close coupling. ISO/IEC 14443^[3] and 15693^[4] specify access by radio frequency. Such cards are also known as contactless cards.

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Introduction

ISO/IEC 7816 is a series of documents specifying integrated circuit cards and the use of such cards for interchange. These cards are identification cards intended for information exchange negotiated between the outside world and the integrated circuit in the card. As a result of an information exchange, the card delivers information (computation result, stored data), and / or modifies its content (data storage, event memorization).

- Five parts are specific to cards with galvanic contacts and three of them specify electrical interfaces.
 - ISO/IEC 7816-1 specifies physical characteristics for cards with contacts.
 - ISO/IEC 7816-2 specifies dimensions and location of the contacts.
 - ISO/IEC 7816-3 specifies electrical interface and transmission protocols for asynchronous cards.
 - ISO/IEC 7816-10 specifies electrical interface and answer to reset for synchronous cards.
 - ISO/IEC 7816-12 specifies electrical interface and operating procedures for USB cards.
- All the other parts are independent from the physical interface technology. They apply to cards accessed by contacts and / or by radio frequency.
 - ISO/IEC 7816-4 specifies organization, security and commands for interchange.
 - ISO/IEC 7816-5 specifies registration of application providers.
 - ISO/IEC 7816-6 specifies interindustry data elements for interchange.
 - ISO/IEC 7816-7 specifies commands for structured card query language.
 - ISO/IEC 7816-8 specifies commands for security operations.
 - ISO/IEC 7816-9 specifies commands for card management.
 - ISO/IEC 7816-11 specifies personal verification through biometric methods.
 - ISO/IEC 7816-15 specifies cryptographic information application.

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of the following patents:

WO 00/16255, *Data transmission method and card therefor*, 23 March 2000

Declared for ISO/IEC 7816-2

WO 01/69881, *A method of communication between a smart card and a host station*, 20 September 2001

WO 01/57684 A1, *Conveying protocol units for portable electronic objects via a protocol for microcomputer peripherals*, 9 August 2001

0001399 / France, *Transport d'unités de protocole d'objet électronique portable par protocole pour périphériques de micro-ordinateur*

09/775668 / USA, *Conveying protocol units for portable electronic objects via a protocol for microcomputer peripherals*

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1904043 / Europe, *Transport d'unités de protocole d'objet électronique portable par protocole pour périphériques de micro-ordinateur*

1804474 / China, *Conveying protocol units for portable electronic objects via a protocol for microcomputer peripherals*

PCT / FR01 / 00326, *Transport d'unités de protocole d'objet électronique portable par protocole pour périphériques de micro-ordinateur*

US 6148354, *Architecture for a universal serial bus-based PC flash disk*

US 6763399, *USB key apparatus for interacting with a USB host via a USB port*

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Contact	Patent number
Schlumberger Systèmes, France	WO 00/16255 WO 01/69881
GEMPLUS, France	WO 01/57684 A1 0001399 / France / Granted 09/775668 / USA / Pending 1904043 / Europe / Pending 1804474 / China / Pending PCT / FR01 / 00326 / Pending
M-Systems, Israel	US 6148354
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