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

Part 10:

**Electronic signals and answer to reset for
synchronous cards**

Cartes d'identification — Cartes à circuit(s) intégré(s) à contacts —

*Partie 10: Signaux électroniques et réponse à la mise à zéro des cartes
synchrones*

Reference number
ISO/IEC 7816-10:1999(E)



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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Term and definition	1
4 Symbols and abbreviated terms	2
5 Electrical characteristics of the contacts	2
5.1 Contact assignments	2
5.2 Voltage and current values	2
5.3 Card type selection	2
6 Reset of the card	2
6.1 Synchronous card type 1	2
6.2 Synchronous card type 2	3
7 Answer-to-Reset	3
7.1 Clock frequency and bit rate	3
7.2 Structure of the Answer-to-Reset header	3
7.3 Timing of the header	3
7.3.1 Synchronous card type 1	3
7.3.2 Synchronous card type 2	4
7.4 Data content of the header	4
8 Deactivation of the contacts	4
Annex A (informative) Example of data structure introduced by H3 = '10'	6
Annex B (informative) Example of coding of H1 and H2	7

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 7816 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 7816-10 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices*.

ISO/IEC 7816 consists of the following parts, under the general title *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 (SCQL)*
- *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).

During the preparation of this part of ISO/IEC 7816, information was gathered concerning relevant patents upon which application of this standard might depend. Relevant patents were identified in France and USA, the patent holder being Bull S.A. in each case. However, ISO cannot give authoritative or comprehensive information about evidence, validity or scope of patents or like rights.

The patent holder has stated that licenses will be granted in appropriate terms to enable application of this part of ISO/IEC 7816, provided that those who seek licenses agree to reciprocate.

Further information is available from:

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FRANCE

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

Part 10:

Electronic signals and answer to reset for synchronous cards

1 Scope

This part of ISO/IEC 7816 specifies the power, signal structures, and the structure for the answer to reset between an integrated circuit(s) card with synchronous transmission and an interface device such as a terminal.

The specifications in ISO/IEC 7816-3 apply where appropriate, unless otherwise stated here.

It also covers signal rates, operating conditions, and communication with the integrated circuit(s) card.

This part of ISO/IEC 7816 specifies two types of synchronous cards: type 1 and type 2.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 7816. 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 7816 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 1177:1985, *Information processing — Character structure for start/stop and synchronous character oriented transmission.*

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

ISO/IEC 7816-2:1999, *Information technology — Identification cards — Integrated circuit(s) cards with contacts — Part 2: Dimensions and location of the contacts.*

ISO/IEC 7816-3:1997, *Information technology — Identification cards — Integrated circuit(s) cards with contacts — Part 3: Electronic signals and transmission protocols.*

ISO/IEC 7816-4:1995, *Information technology — Identification cards — Integrated circuit(s) cards with contacts — Part 4: Interindustry commands for interchange.*

ISO/IEC 7816-4:1995/Amd.1:1997, *Information technology — Identification cards — Integrated circuit(s) cards with contacts — Part 4: Interindustry commands for interchange — Amendment 1: Impact of secure messaging on the structures of APDU messages.*