Second edition 2006-12-15

Identification cards — Contactless integrated circuit cards — Vicinity cards —

Part 2: Air interface and initialization

Cartes d'identification — Cartes à circuit(s) intégré(s) sans contact — Cartes de voisinage —

Partie 2: Interface et initialisation dans l'air



Reference number ISO/IEC 15693-2:2006(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office Case postale 56 • CH-1211 Geneva 20 Tel. + 41 22 749 01 11 Fax + 41 22 749 09 47 E-mail copyright@iso.org Web www.iso.org Published in Switzerland

[©] ISO/IEC 2006

Contents

Forewordiv			
Introductionv			
1	Scope	. 1	
2	Normative references	. 1	
3	Terms and definitions	. 1	
4 4.1 4.2	Symbols and abbreviated terms Abbreviated terms Symbols	. 2	
5	Initial dialogue for vicinity cards	. 2	
6 6.1 6.2	Power transfer Frequency Operating field	. 3	
7 7.1 7.2 7.3	Communications signal interface VCD to VICC Modulation Data rate and data coding VCD to VICC frames	. 3 . 5	
8 8.1 8.2 8.3 8.4 8.5	Communications signal interface VICC to VCD Load modulation Subcarrier Data rates Bit representation and coding VICC to VCD frames	. 9 . 9 . 9 10	
Annex	A (informative) Standards compatibility	14	

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.

ISO/IEC 15693-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

This second edition cancels and replaces the first edition (ISO/IEC 15693-2:2000), of which it constitutes a minor revision. It also incorporates Technical Corrigendum ISO/IEC 15693-2:2000/Cor.1:2001.

ISO/IEC 15693 consists of the following parts, under the general title *Identification cards* — *Contactless integrated circuit cards* — *Vicinity cards*:

- Part 1: Physical characteristics
- Part 2: Air interface and initialization
- Part 3: Anticollision and transmission protocol

Introduction

ISO/IEC 15693 is one of a series of International Standards defining the parameters for identification cards as defined in ISO/IEC 7810 and the use of such cards for international interchange.

This part of ISO/IEC 15693 defines the electrical characteristics of the contactless interface between a vicinity card and a vicinity coupling device. The interface includes power and bi-directional communications.

This part of ISO/IEC 15693 does not preclude the incorporation of other standard technologies on the card.

Contactless card standards cover a variety of types as embodied in ISO/IEC 10536 (close-coupled cards), ISO/IEC 14443 (proximity cards) and ISO/IEC 15693 (vicinity cards). These are intended for operation when very near, nearby and at a longer distance from associated coupling devices, respectively.

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 patents.

ISO and IEC take no position concerning the evidence, validity and scope of these patent rights.

The holders of these patent rights have assured ISO and IEC that they are willing to negotiate licences under reasonable and nondiscriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with the ISO and IEC. Information may be obtained from the following companies.

Contact	Subclause in this part of ISO/IEC 15693
Infineon Technologies AG P O Box 800949 D-81609 Munich Germany	
Koninklijke Philips Electronics N.V. Prof. Holstlaan 6 6566 AA Eindhoven The Netherlands	7.2, Data rate and data coding
Omron Corporation Intellectual Property Group 20 Igadera, Shimokaiinji, Nagaokakyo-City Kyoto, 617-8510 Japan	
<i>EM Microelectronic-Marin SA IP Management Rue des Sors 3 CH-2074 Marin</i>	7.2, Data rate and data coding 7.3, VCD to VICC frames
Texas Instruments Deutschland GmbH D-85350 Freising Germany	8.2, Subcarrier 8.3, Data rates

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO and IEC shall not be held responsible for identifying any or all such patent rights.