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Cards and security devices for personal identification — Contactless proximity objects

Part 3: Initialization and anticollision



AS ISO/IEC 14443.3:2022

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Preface

This Standard was prepared by the Standards Australia Committee IT-017, Cards and security devices for personal identification, to supersede AS 14443.3:2003, *Identification cards — Contactless integrated circuit(s) cards — Proximity cards, Part 3: Initialization and anticollision.*

The objective of this document is to describe the following:

(a) Polling for proximity cards or objects (PICCs) entering the field of a proximity coupling device (PCD).

(b) The byte format, the frames and timing used during the initial phase of communication between PCDs and PICCs.

(c) The initial Request and Answer to Request command content.

(d) Methods to detect and communicate with one PICC among several PICCs (anticollision).

(e) Other parameters required to initialize communications between a PICC and PCD.

(f) Optional means to ease and speed up the selection of one PICC among several PICCs based on application criteria.

(g) Optional capability to allow a device to alternate between the functions of a PICC and a PCD to communicate with a PCD or a PICC, respectively. A device which implements this capability is called a PXD.

Protocol and commands used by higher layers and by applications and which are used after the initial phase are described in AS ISO/IEC 14443.4:2022.

This document is applicable to PICCs of Type A and of Type B (as described in AS ISO/IEC 14443.2:2022), to PCDs (as described in AS ISO/IEC 14443.2:2022) and to PXDs.

This document is identical with, and has been reproduced from, ISO/IEC 14443-3:2018, *Cards and security devices for personal identification — Contactless proximity objects — Part 3: Initialization and anticollision* and its Amendment No. 1 (2021) and Amendment No. 2 (2020) which have been added at the end of the source text.

As this document has been reproduced from an International document, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and security devices for personal identification*.

This fourth edition cancels and replaces the third edition (ISO/IEC 14443-3:2016), which has been technically revised.

The following are the main changes since the last edition:

— RFU handling rules and clarifications have been added;

— Annexes D and E have been removed.

A list of all the parts in the ISO/IEC 14443 series can be found on the ISO website.

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Introduction

The ISO/IEC 14443 series of standards describes the parameters for identification cards or objects for international interchange.

This document describes polling for proximity cards entering the field of a proximity coupling device, the byte format and framing, the initial Request and Answer to Request command content, methods to detect and communicate with one proximity card among several proximity cards (anticollision) and other parameters required to initialize communications between a proximity card and a proximity coupling device. Protocols and commands used by higher layers and by applications and which are used after the initial phase are described in ISO/IEC 14443-4.

The ISO/IEC 14443 series of standards is intended to allow operation of proximity cards in the presence of other contactless cards or objects conforming to the ISO/IEC 10536 series of standards and the ISO/IEC 15693 series of standards and near field communication (NFC) devices conforming to ISO/IEC 18092 and ISO/IEC 21481.

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Cards and security devices for personal identification — Contactless proximity objects

Part 3: Initialization and anticollision

1 Scope

This document describes the following:

— polling for proximity cards or objects (PICCs) entering the field of a proximity coupling device (PCD);

— the byte format, the frames and timing used during the initial phase of communication between PCDs and PICCs;

— the initial Request and Answer to Request command content;

— methods to detect and communicate with one PICC among several PICCs (anticollision);

— other parameters required to initialize communications between a PICC and PCD;

— optional means to ease and speed up the selection of one PICC among several PICCs based on application criteria;

— optional capability to allow a device to alternate between the functions of a PICC and a PCD to communicate with a PCD or a PICC, respectively. A device which implements this capability is called a PXD.

Protocol and commands used by higher layers and by applications and which are used after the initial phase are described in ISO/IEC 14443-4.

This document is applicable to PICCs of Type A and of Type B (as described in ISO/IEC 14443-2), to PCDs (as described in ISO/IEC 14443-2) and to PXDs.

NOTE 1 Part of the timing of data communication is defined in ISO/IEC 14443-2.

NOTE 2 Test methods for this document are defined in ISO/IEC 10373-6.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 7816-4, *Identification cards — Integrated circuit cards — Part 4: Organization, security and commands for interchange*

ISO/IEC 7816-6, *Identification cards — Integrated circuit cards — Part 6: Interindustry data elements for interchange*

ISO/IEC 13239, *Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures*

ISO/IEC 14443-2, *Cards and security devices for personal identification — Contactless proximity objects —Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-4, *Cards and security devices for personal identification — Contactless proximity objects —Part 4: Transmission protocol*

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