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Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1)

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Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Conformance 1

3 Normative references 1

4 Terms and definitions 2

5 Conventions and notations 4
5.1 Representation of numbers 4
5.2 Names 4

6 Abbreviated terms 4

7 General 5

8 RF field 6
8.1 Values 6
8.2 Passive communication Mode 6
8.3 Active communication Mode 6
8.4 External RF field detection 6

9 RF Signal Interface 6
9.1 Bit duration 6
9.2 Active communication mode 7
9.2.1 Requirements for *fc*/128 7
9.2.2 Requirements for *fc*/64 and *fc*/32 7
9.3 Passive communication mode 8
9.3.1 Initiator to Target requirements for *fc*/128 8
9.3.2 Target to Initiator requirements for *fc*/128 9
9.3.3 Initiator to Target requirements for *fc*/64 and *fc*/32 9
9.3.4 Target to Initiator requirements for *fc*/64 and *fc*/32 9

10 General Protocol flow 10

11 Initialisation 10
11.1 RF Collision Avoidance 11
11.1.1 Initial RF Collision Avoidance 11
11.1.2 Response RF Collision Avoidance 12
11.2 Passive communication mode 13
11.2.1 Initialisation and Single Device Detection at *fc*/128 13
11.2.2 Initialisation and SDD at *fc*/64 and *fc*/32 13
11.3 Active communication mode 17
11.3.1 Initialisation at *fc*/128, *fc*/64, and *fc*/32 17
11.3.2 Active communication mode RF Collision Avoidance 17

12 Transport Protocol 18
12.1 Transport Data 18
12.2 Passive communication mode Activation flow 18
12.3 Active communication mode Activation flow 19
12.4 Commands 22
12.5 Activation of the protocol 22
12.5.1 Attribute Request and Response Commands 22
12.5.2 Wakeup Request and Response Commands 28
12.5.3 Parameter Selection Request and Response Commands 30

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12.6 Data Exchange Protocol **33**
12.6.1 Data Exchange Protocol Request and Response **33**
12.6.2 Response timeout extension **37**
12.6.3 Attention – Target present **37**
12.6.4 Protocol operation **37**
12.6.5 Multi Activation **37**
12.6.6 More information (Chaining) **38**
12.7 Deactivation of the protocol **38**
12.7.1 Deselect Request and Response command **39**
12.7.2 Release Request and Response commands **40**

Annex A (normative) **CRC calculation** **42**
A.1 CRC for Active and Passive communication mode at *fc*/128 ..... **42**
A.2 Example of CRC calculation at *fc*/128 ..... **42**
A.3 CRC for Active and Passive communication mode at *fc*/64 and *fc*/32 ..... **43**
A.4 Example of CRC calculation at *fc*/64 and *fc*/32 ..... **43**

Annex B (informative) **SAK** **44**

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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 18092 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

This second edition cancels and replaces the first edition (ISO/IEC 18092:2004), which has been technically revised.

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Introduction

This International Standard specifies the interface and protocol for simple wireless communication between close coupled devices. These Near Field Communication (NFC) devices communicate with bit rates of 106, 212, and 424 kbit/s.

This NFC Interface and Protocol (NFCIP-1) standard allows, but does not specify, applications in network products and consumer equipment.

The first edition of ISO/IEC 18092:2004 was prepared by Ecma International (as ECMA-340) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC. This second edition of ISO/IEC 18092 was maintained by JTC 1/SC 6 and Ecma International; it cancels and replaces the first edition (ISO/IEC 18092:2004), which has been technically revised with fully backward compatibility.

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Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1)

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1 Scope

This International Standard defines communication modes for Near Field Communication Interface and Protocol (NFCIP-1) using inductive coupled devices operating at the centre frequency of 13,56 MHz for interconnection of computer peripherals. It also defines both the Active and the Passive communication modes of Near Field Communication Interface and Protocol (NFCIP-1) to realize a communication network using Near Field Communication devices for networked products and also for consumer equipment. This International Standard specifies, in particular, modulation schemes, codings, transfer speeds, and frame format of the RF interface, as well as initialisation schemes and conditions required for data collision control during initialisation. Furthermore, this International Standard defines a transport protocol including protocol activation and data exchange methods.

Information interchange between systems also requires, at a minimum, agreement between the interchange parties upon the interchange codes and the data structure.

2 Conformance

A system implementing the Active and the Passive communication mode shall be in conformance with this International Standard if it meets all the mandatory requirements specified herein.

It may also implement the NFC-SEC Option as specified in ISO/IEC 13157-1.

3 Normative references

The following referenced documents are indispensable for the application 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.

ITU-T V.41:1988, *Code-independent error-control system*

ISO/IEC 13157-1:2010, *Information technology — Telecommunications and information exchange between systems — NFC Security — Part 1: NFC-SEC NFCIP-1 security services and protocol*

ISO/IEC 14443-2:2010, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-3:2011, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 3: Initialization and anticollision*

ISO/IEC 14443-4:2008, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 4: Transmission protocol*

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