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Identification cards - Contactless integrated circuit(s) cards — Part 4: Transmission protocol — Part 4: Amendment 1: Activation of higher layer protocols

Cartes d'identification — Cartes à circuit(s) intégrés sans contacts — Cartes de proximité — Partie 4:Protocole de transmission

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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Amendment 1 to ISO/IEC 14443-4:2008 was prepared by Technical Committee ISO/IEC/TC , , Subcommittee SC 17, *Cards and Personal Identification*.

Introduction

Identification cards - Contactless integrated circuit(s) cards — Part 4: Transmission protocol — Part 4: Amendment 1: Activation of higher layer protocols

1 Page 15, section 5.2.6

Replace the chapter 5.2.6 by the following text

5.2.6 Interface byte TC(1)

The interface byte TC(1) specifies a parameter of the protocol.

The specific interface byte TC(1) consists of two parts (see Figure 8):

- The most significant bits b8 to b4 shall be (00000)b and all other values are RFU.
- The bit b3 define the support of X-block by the PICC as define in § 7.1.1.1
- The bits b2 and b1 define which optional fields in the prologue field a PICC does support. The PCD is allowed to skip fields, which are supported by the PICC, but a field not supported by the PICC shall never be transmitted by the PCD. The default value shall be (10)b indicating CID supported and NAD not supported.
- A PICC setting (b8 to b4) <> (00000)b is not compliant with this standard. The PCD should ignore (b8 to b4) and its interpretation of (b3,b2,b1) or of any other field of the whole frame shall not change.

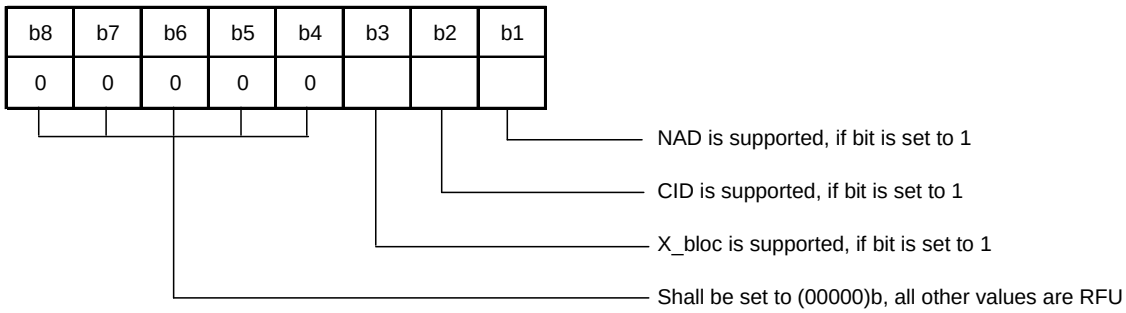


Figure 8: Coding of the interface byte TC(1)

2 Page 17, section 5.3.3

Replace the chapter 5.3.3 by the following text

5.3.3 Parameter 1

PPS1 consists of three parts (see Figure 12):

- The most significant half byte b8 to b6 shall be (000)b and all other values are RFU.
- The bit b5 defines the support of X_block by the PCD as defined in § 7.1.1.1
- The bits b4 and b3 are called DSI and code the selected divisor integer from PICC to PCD.
- The bits b2 and b1 are called DRI and code the selected divisor integer from PCD to PICC.
- A PCD setting (b8 to b6) <> (000)b is not compliant with this standard. A PICC receiving (b8 to b6) <> (000)b shall apply 5.6.2.2 (b).

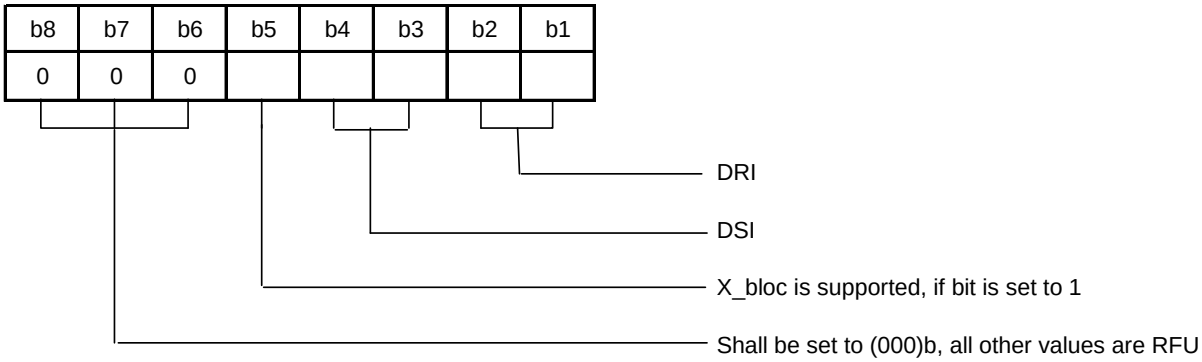


Figure 12: Coding of PPS1

For the definition of DS and DR, see 5.2.4.

The coding of D is given in Table 2.

3 Page 21, section 7.1.1.1

Replace the chapter 7.1.1.1 by the following text

7.1.1.1 Protocol control byte field

The PCB is used to convey the information required to control the data transmission.

The protocol defines three fundamental types of blocks:

- I-block used to convey information for use by the application layer.
- R-block used to convey positive or negative acknowledgements. An R-block never contains an INF field. The acknowledgement relates to the last received block.
- X-block used to convey start-up and setting of optional higher layer protocol. The sending of X-blocks is allowed only if both sides have declared the support of it.
- S-block used to exchange control information between the PCD and the PICC. Two different types of S-blocks are defined:

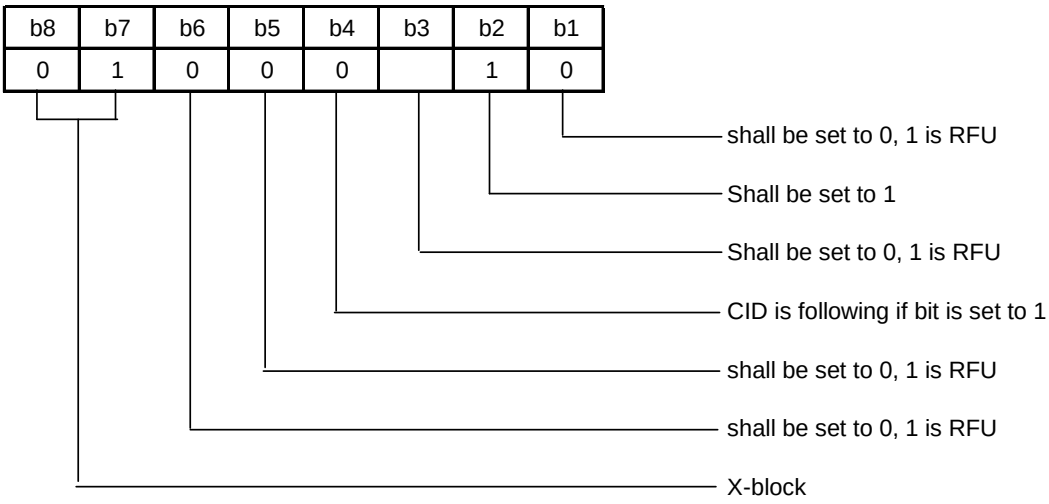
  1) Waiting time extension containing a 1 byte long INF field and

  2) DESELECT containing no INF field.

The coding of the PCB depends on its type and is defined by the following figures. PCB coding not defined here are either used in other clauses of ISO/IEC 14443 or are RFU. The coding of I-blocks, R-blocks , S-blocks and X-blocks are shown in Figure 15, Figure 16, Figure 17 and Figure 17b.

A PICC or PCD setting b6 <> 0 of an I-block is not compliant with this standard. A PICC or PCD setting b2 <> 1 of an R-block is not compliant with this standard. A PICC or PCD setting (b2,b1) <> (10)b of an S-block is not compliant with this standard.

4 Page 22, Add Figure 17a after Figure 17



5 Page 24, section 7.1.2

Replace § 7.1.2 by the following text

7.1.2 Information field

The INF field is optional. When present, the INF field conveys either application data in I-blocks or non application data and status information in S-blocks. The length of the information field is calculated by counting the number of bytes of the whole block minus length of prologue and epilogue field.

In X-block, the INF field shall be present. It shall convey parameters and activation commands of the upper layer protocol.

X blocks convey data that are relevant to the functionality which is declared. The syntax of the data structure and corresponding encoding shall comply with ASN.1 and BER-TLV encoding rules (defined in ISO/IEC 8824 and ISO 8825). Annex D provides with a list of relevant Data Objects of the Contextual Class according to ISO/IEC 7816-4.

6 Page 28, section 7.5.4.2:

Add the following after Rule 8:

Rule 8.1. If the X(…) request is not answered by an error-free X(…) response the X(…) request may be re-transmitted.

7 Page 28, section 7.5.4.3:

Add the following after Rule 3:

Rule 3.1. X-blocks are only used as Request/Response pairs. An X(...) request block shall always be followed by an X(...) response block. The PCD and the PICC are entitled to send a X(..) Request at any time: e.g. X blocks can be interleaved with I-frames.

Rule 3.2: An X-block exchange when occur during a I-block exchange is valid when the I-Block exchange is completed.

8 Page 32, section B.1:

Add the following at the list

X(…) X-block

9 Page 35, section A

Add § B.2.6 after § B.2.5

B.2.6 Exchange of X-blocks

Scenario 9.1 Exchange of X-blocks

	Comment	**Block No. (0)**	**PCD**		**PICC**	**Block No. (1)**	**Comment**
1.	rule 3.1		X(…)Request	===>			
2.				<===	X (…)Response		

Scenario 9.2 Exchange of X-block

	Comment	**Block No. (0)**	**PCD**		**PICC**	**Block No. (1)**	**Comment**
1.	rule 1		$I(0)_0$	===>		0	rule D
2.				<===	X(…) request		rule 3.1
3.	rule 3.1		X (…) response	===>			
4.	rule B	1		<===	$I(0)_0$		rule 10
5.			$I(0)_1$	===>		1	rule D
6.	rule B	0		<===	$I(0)_1$		rule 10

10 Page 40, section B.3.4

Add chapter § B.3.5

Scenario 25 Exchange of X-block

	Comment	Block No. (0)	PCD		PICC	Block No. (1)	Comment
1.	rule 1		$I(0)_0$	===>		0	rule D
2.	rule B			<===	$I(0)_0$		rule 10
3.			X(…) request	=≠=>			
4.	time-out			<= =	-		
5.	rule 8.1		X(…) request	===>			
6.				<===	X (…) response		rule 3.1

11 Page 42, Annex C

Add at the end of the list

X-block (01xxxxxx)b (not (0110xxxx)b and not (0101xxxx)b)

Annex D

(normative)

X-bloc Tag Definition

Data Objects defined in this Annex comply with the BER-TLV encoding rules for the contextual class according to ISO/IEC 7816-4

Tag (Hex)	Description	Value see table D2
’A0’	VHDR (Very High Data rate)	Command
’A1’	P2P (Peer to Peer)	Command
’A2’	Secure Layer	Command
’A3’ to ’A9’	RFU	NA

Table D1: Protocol supported definition

Tag (Hex)	Description	Value
’AA’	Activation Command	Parameter A
’AB’	Deactivation Command	Parameter B
’AC’	Unknown command	Parameter C

’AD’	Declaration/Version Command	Parameter D
’AE’	Rejected Command	Parameter E
’AF’ to ’B9’	RFU	NA

Table D2: Commands definition

Tag (Hex)	Description	Value
’BA’	Parameter A	TBD define in the corresponding standard related to the selected mode
’BB’	Parameter B	TBD define in the corresponding standard related to the selected mode
’BC’	Parameter C	TBD define in the corresponding standard related to the selected mode
’84’	Parameter D	TBD define in the corresponding standard related to the selected mode
’BD’ to ’BF’	RFU	NA

Table D3: Parameter definition

Implementation example:

Peer to Peer mode declaration/ activation using X-Bloc Tags

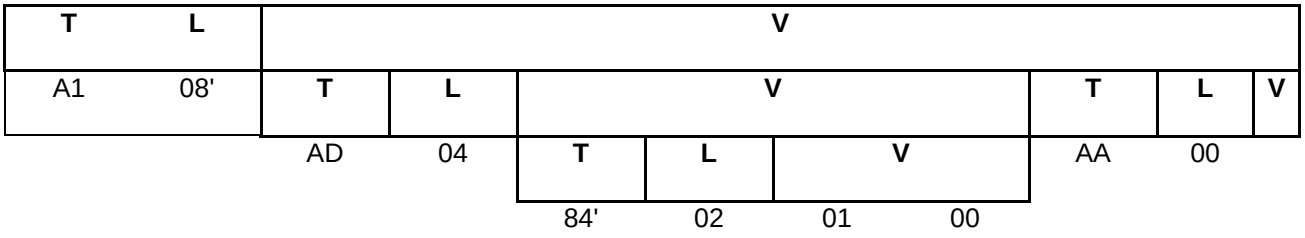
P2P mode supported = ’A1’

Declaration / version Command = ‘AD’

Version = ‘84’ (Primitive OctetString) , e.g.: major version = ‘01’, minor version ‘00’

Activation Command = ‘AA ‘

No Parameter



Scenario D.1 example

Transition	PCD		PICC
X-block P2P Declaration/ activation request	X(A108AD0484020100AA00)	⟶	
Accepted by PICC		⟵	X(A108AD0484020100AA00)

Scenario D.2 example

Transition	PCD	PICC

Transition	PCD		PICC
X-block P2P Declaration/ activation request	X(A108AD0484020100AA00)	⟶	
		⟵	X(A102AE00)
Rejected by PICC		⟵	X(A102AE00)