

**ISO/IEC JTC 1/SC 17**  
**Cards and personal identification**  
**Secretariat: BSI (United Kingdom)**

**Document type:** Disposition of Comments Report

**Title:** Disposition of comments on: CD ISO/IEC 14443-4:2008/AM2 — Identification cards — Contactless integrated circuit(s) cards — Proximity cards — Part 4: Transmission protocol — AMENDMENT 2: Bits rates higher than fc/16 and up to fc

**Status:** **Reference documents:**  
**Ballot is in SC17 N 4099 = WG8 N 1776**  
**Ballot Result is in SC17 N 4161 = WG8 N 1777**

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**Disposition of comments on:  
CD ISO/IEC 14443-4:2008/AM2 — Identification cards — Contactless  
integrated circuit(s) cards — Proximity cards — Part 4:  
Transmission protocol — AMENDMENT 2: Bits rates higher than  
fc/16 and up to fc**

**Reference documents:**

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**Project Editor:**

Reinhard Meindl, Austria

The following pages provide the details of the comments and detailed information about their resolutions, how WG8 had resolved each received comment from the CD Ballot (PDAM) at the WG8 meeting held in Ispra, Italy, on 2011-03-28/30.

The two negative votes from Germany and Japan could be resolved primarily by the WG8 Resolution 49.03, (contained in WG8 N 1796 = SC17 N 4xxx), which determines a separation of the very high bit rate options into two spectrums with one related to the ASK and the other one to the PSK technology. That decision has an impact to this amendment which will be continued as being just related to ASK furtheron. The new text of this one, as presented in WG8 N 1807, is to be processed as FCD according to the WG8 Resolution 49.07.

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Proposed Editors Disposition
FR1	5	1 <sup>st</sup> dash	ed	typo	Use unbreakable space between "ISO/IEC" and "14443-3"	accepted
FR2	5.2.3		ed	typo	Replace "bullet" with "dash"	accepted
FR3	9	2 <sup>nd</sup> and 3 <sup>rd</sup> dashes	ed	Consistency between "a S(PARAMETERS)" and "an S(PARAMETERS)"	Choose the best one and make the document consistent	Resolved
FR4	9	3 <sup>rd</sup> dash	ED	The end of 3 <sup>rd</sup> bullet is redundant with the paragraph below table A.2	Either refer to with the paragraph below table A.2 or (preferably) move all details in the 3 <sup>rd</sup> dash Do the same for the PCD activation paragraph.	Resolved
FR5	9	Paragraph above table A.3	ed	Consistency with 2 <sup>nd</sup> paragraph of 9	Replace "The PCD shall activate the bit rates for each communication direction" with "The PCD shall activate one bit rate for each communication direction"	Resolved
FR6	9	Table A.3	ED	The PICC type could be added in a left column	"A or B" for fc/128, fc/64, fc/32 and fc/16 "B" for 2ASK8, 2ASK4 and 2ASK2 "A or B" for all PSK lines	Resolved
FR7	9	Table A.3	ed	Non defined values are RFU	The RFU values should be specified ('14' to 'FF') in the Best regards column and the word RFU should be in another column.  (Maybe the BR1 column should be the left one?)	Resolved
FR8	9	Table A.2	ED	Table A.2 is not consistent with Figure 1: Byte '06' of Tag '01' and Byte '01' after Tag '02' are not defined	Add a table below table A.2 with the following title "Parameter Tags definition" which defines Tags '01' (Bit rate) and '02' (framing option)	Resolved

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2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial – For technical comments, please indicate whether your comment is a MAJOR or MINOR technical comment.

**NOTE** Columns 1, 2, 4, 5 and 6 are compulsory.

Date: February 15, 2011	Document: ISO/IEC JTC 1/SC17 N4099: IEC 14443-4:2010/PDAM 2 - Identification cards – Contactless integrated circuit cards – Proximity cards - Part 4: Transmission protocol - AMENDMENT 2 Activation of bit rates up to fc, protocol activation of PICC Type A and increased frame size
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US	Page 3	Section 9, Activation of bit rates up to fc	Editorial	The extensions to FSD and FSDI ( <i>permitted frame sizes</i> ) on page 3 appear to be backwards compatible, from a standards perspective. If a larger frame size is available, devices compliant to the existing published standard should default to the largest frame size they support – for the currently published standard, the largest frame size is 256 bytes.	Change the text to: “The extensions to FSD and FSDI ( <i>permitted frame sizes</i> ) on page 3 appear to be backwards compatible, from a standards perspective. If a larger frame size is available, devices compliant to the existing published standard should default to the largest frame size they support – for the currently published standard, the largest frame size is 256 bytes.”	withdrawn
US	Page 3	Section 9, Activation of bit rates up to fc S(PARAMETERS)	Editorial	The S(PARAMETERS) message is a new message type not defined in the base standard. Please include a definition in this PDAM.  Without the existence of the definition for S(PARAMETERS) in this PDAM, it is assumed that the definition in Amendment 1 is used “indirectly” by this Amendment.	Include the definition for S(PARAMETERS) in this PDAM. S(PARAMETERS) must be defined, otherwise, ambiguity exists.	Resolved Include a editors note: S(Parameters) is defined in ISO/IEC 14443-4/Amd1
US	Page 3	Section 9, Activation of bit rates up to fc	Technical	Regarding the statement: “If the PICC supports S(PARAMETERS) blocks...”, a definition is needed about what happens if the PICC doesn’t support this message type. Ambiguity arises when the question becomes whether or not the PICC that supports the S(PARAMENTERS) blocks is covered by Amendment 1.	Add a statement about the description of what happens when the PICC supports S(PARAMETERS) blocks. Without a description, ambiguity exists.	Resolved by “If the card does not support S(parameters) it may interpret S(Parameters) as S(DESELECT) or stay MUTE.”
US	Page 4	Table A.1	Technical	For tag ‘A0’, it is not clear whether or not the PCD, PICC, or both, generate messages containing this tag.	Add text to clarify whether or not the PCD, PICC, or both, generate messages that contain tag ‘A0’.	Rejected Specification appears to be clear in 9 first paragraph “...shall contain...”
US	Page 4	Table A.2	Tech-	For tags ‘AA’ and ‘AB’, it is NOT documented that the numbers ‘01’ and ‘02’ shown in the ‘Value’ column are in	Add explicit explanations about whether or not tags ‘01’ and ‘02’ are nested tags with associated	Resolved

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			nical	fact nested tags followed by length and data fields. It is only inferred by working through the example given on pages 6 & 7 (inferring isn't good for a standard).	length and data fields.	By NL3
US	Page 4	The text following the Table	Editorial	Typographical error: delete the word "with" as follows: "The PICC shall indicate its supported bit rates <del>with</del> using tag 'AA' and listing pairs of BR indicator 1 and BR indicator 2, one pair for each supported bit rate from PCD to PICC communication together with corresponding supported bit rates for the PICC to PCD communication.	Delete the word "with" as follows: "The PICC shall indicate its supported bit rates <del>with</del> using tag 'AA' and listing pairs of BR indicator 1 and BR indicator 2, one pair for each supported bit rate from PCD to PICC communication together with corresponding supported bit rates for the PICC to PCD communication.	accepted
US	Page 4	The text following Table A.2, Function tags with ID definition	Editorial	Typographical error: delete the word "with" as follows: "The PCD shall activate <del>a</del> bit rates for both communication directions <del>with</del> using tag 'AB' with one pair of BR indicator 1 (determining PCD to PICC bit rate) and BR indicator 2 (determining PICC to PCD bit rate by only one bit set)."	Delete the word "with" as follows: "The PCD shall activate <del>a</del> bit rates for both communication directions <del>with</del> using tag 'AB' with one pair of BR indicator 1 (determining PCD to PICC bit rate) and BR indicator 2 (determining PICC to PCD bit rate by only one bit set)."	accepted
US	Page 5, 7.1.3 The text reads:" Add the following paragraph below Figure 14: "The SOF and EOF for PSK	Table A.3 – Bit Rates	Technical	<b>This proposed standard defines the RF Interface for very high speed bit rates (VHBRs).</b>  <b>There are many applications that demonstrate that the ISO/IEC 14443 standard does not need the complex PSK modulation approach. Therefore, ASK shall be supported. Additionally, a Type B PICC can use both ASK and PSK whereas a Type A PICC can only use PSK resulting in a disadvantage from an</b>	Delete the value for PSK from Table A.3 – Bit Rates and from the recommendation for new text on page 25 and page 44.	<b>Resolved by resolution 49.03</b>

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	<p>modulation from PCD to PICC are defined in ISO/IEC 14443-2:2010 Amd.1."</p> <p><i>Page 44, 7.10.3.3</i> Replace last sentence of last paragraph with: "For bit rates higher than <math>f_c / 128</math> (~ 106 kbit/s) up to <math>f_c / 16</math> the PICC shall always provide SOF and EOF."</p>			<p><b>infrastructure point-of-view.</b></p> <p>The maximum speed supported by ASK is 6.8 Mbits, whereas the maximum speed (proposed) for PSK is 13.56 Mbits (theoretical). PSK offers many different modes (see the table in the PSK section of the 14443 standard, Table 1). The high number of modes (supported by PSK) requires significant effort for testing, especially for PCD (readers).</p>		

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## Template for comments and secretariat observations

Date: 08/03/10

Document: ISO/IEC 14443-4: PDAM 2

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of com- ment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
UK1	General		ge	Plethora of options	Consider overall reduction in the number of options supported at this stage	Resolved By resolution 49.03

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DE 1			ge	Germany disapproves because of the following reason: Germany requests to specify only one single VHBR Mode for bitrates up to 6,78 Mbit/s, which shall be ASK. The PSK modulation scheme shall be specified for data rates greater than 6,78 Mbit/s. If the above concept will be satisfyingly considered, Germany will change its vote to "Approval".	The document shall be updated accordingly to reflect the proposed changes.	Resolved by Principal Wg8 decision Resolution 4903
DE2		Titel	ED	For better understanding and being clearer the title should be changed	Change title to: "Bit rates higher than $f_c / 16$ up to $f_c$ , protocol activation of PICC Type A and frame sizes higher than 256 bytes up to 4096 bytes."  Of course same for the French title.	accepted
DE3	New clause 9	All tables	ed	Tables should be renumbered accordingly and references should be updated.	Start with Table 4	accepted
DE4	New clause 9	Table A.2	te	It should be possible to indicate bitrates independent from the direction.	Replace Value of 'AA' by:  01 supported bit rates from PCD to PICC (see Table A.4) 02 supported bitrates from PICC to PCD (see Table A.5) 03 list of supported bit rates from PCD to PICC together with the corresponding supported bit rates from PICC to PCD (see table A.3) 04 framing options PICC to PCD (see Table A.6)	Resolved with 01, 02 and 04  01 supported bit rates from PCD to PICC (see Table A.4) 02 supported bitrates from PICC to PCD (see Table A.5) 03 framing options PICC to PCD (see Table A.6)
DE5	New clause 9	Table A.3 Indicator pairs	te	Table shall be updated according to the requirements of DE 1	Remove columns with PCD to PICC bit rate identifier: 2PSK8, 2PSK4, 2PSK2, 4PSK16, 4PSK8, 4PSK4, 8PSK16, 8PSK8, 16PSK16, 16PSK8.	resolved
DE6	New clause 9	1 <sup>st</sup> Paragraph	te	It should be possible to indicate bitrates independent from the direction.	Replace 1 <sup>st</sup> paragraph by: The PICC indicates all its supported bitrates using	Resolved by updated table according splitting decision

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		below Table A.2			tag AA.  If there is a dependency between each communication direction, the PICC shall list pairs of BR indicator 1 and BR indicator 2, one pair for each supported bit rate from PCD to PICC communication together with corresponding supported bit rates for the PICC to PCD communication.	
DE7	New clause 9		te	New table A.4 is needed to indicate supported bit rates from PCD to PICC independently from supported bit rates from PICC to PCD	Add new Table A.4 and renumber other tables accordingly (see Annex 1)	Resolved by updated table according splitting decision
DE8	3.4	Note	ED	Due to the additional introduction of robust extended frames an update of the Note is necessary	“ NOTE The PICC uses per default the standard frame as defined for Type A and Type B, respectively. “	Rejected Moved to TF2
DE9	9	Note	TE	Add Note after Table A.1 and before table A.2 to clarify the unit of the length field.	“Note, the Length field specifies the size of the Value field in bytes. “	Resolved  Note: the length field is in accordance with the full range of BER-TLV (see ISO/IEC 7816-4:2005, 5.32)
DE10	9	Table A.1	ED	Update Table A.2 to reflect TLV nature	See Annex A.2 below	Resolved Tbd
DE11	9	Table A.5	TE	For TSC suppression in Type A PICC to PCD communication and Data rate of 8/fc, 4/fc, 2/fc replace table A.5	See Annex A.3 below	Resolved  Replace suppression by support in A.3. below but suppress type X
DE12	9	Note	TE	Add Note after Table A.5 to clarify if no frame options are selected.	“Note, if no frame options are selected ‘00’ shall be transmitted.”	Resolved by: When no framing option is

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						used then the framing option tag shall be omitted
DE13	7.1	Figure 14	TE	<i>Part 4, page 15, 7.1 "Block format"</i> Update Figure14 and add comment	See Annex A.4 below	Rejected Moved to TF2
DE14	10	Clause	TE	Add new Clause 10 enabling the change between standard and extended frames using S(PARAMETERS) Blocks to increase robustness during data transmission	See Annex A.5 below	Rejected Moved to TF2

Annex 1

New Table A.4 – Supported bit rates PCD to PICC

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b16	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	PCD to PICC bit rate identifier
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1	<i>fc / 128</i>
X	X	X	X	X	X	X	X	X	X	X	X	X	X	1	X	<i>fc / 64</i>
X	X	X	X	X	X	X	X	X	X	X	X	X	1	X	X	<i>fc / 32</i>
X	X	X	X	X	X	X	X	X	X	X	X	1	X	X	X	<i>fc / 16</i>
X	X	X	X	X	X	X	X	X	X	X	1	X	X	X	X	<i>2ASK8</i>
X	X	X	X	X	X	X	X	X	X	1	X	X	X	X	X	<i>2ASK4</i>
X	X	X	X	X	X	X	X	X	1	X	X	X	X	X	X	<i>2ASK2</i>
X	1	X	X	X	X	X	X	1	X	X	X	X	X	X	X	<i>8PSK4</i>
X	X	X	X	X	X	X	1	X	X	X	X	X	X	X	X	<i>4PSK2</i>
X	X	X	X	X	X	1	X	X	X	X	X	X	X	X	X	<i>RFU</i>
X	X	X	X	X	1	X	X	X	X	X	X	X	X	X	X	<i>RFU</i>
X	X	X	X	1	X	X	X	X	X	X	X	X	X	X	X	<i>RFU</i>
X	X	X	1	X	X	X	X	X	X	X	X	X	X	X	X	<i>RFU</i>
X	X	1	X	X	X	X	X	X	X	X	X	X	X	X	X	<i>RFU</i>
X	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	<i>RFU</i>

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1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	RFU
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----

**Annex A2:**

Replace Table A.2:

Tags (Hex)	Description	Length	Value		
'8A'	VHBR Request	0			
'AA'	VHBR Indication	L	Tags	Length	Value
			01	L	list of supported bit rates from PCD to PICC together with the corresponding supported bit rates from PICC to PCD (see Table A.3).
			02	L	supported framing options PICC to PCD (see Table A.5)
'AB'	VHBR Activation	L	Tags	Length	Value
			01	L	selected bit rate from PCD to PICC together with selected bit rate from PICC to PCD (see Table A.3)
			02	L	framing options PICC to PCD (see Table A.5)
'8B'	VHBR Acknowledgement	0			

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**Annex A.3**

“

**Table A.5 — Framing options**

b8	b7	b6	b5	b4	b3	b2	b1	Framing options
X	X	X	X	X	X	X	1	Start Bit suppression from PICC to PCD
X	X	X	X	X	X	1	X	Stop Bit suppression from PICC to PCD
X	X	X	X	X	1	X	X	SOF suppression from PICC to PCD
X	X	X	X	1	X	X	X	EOF suppression from PICC to PCD
X	X	X	1	X	X	X	X	Type A TSC Suppression from PICC to PCD for bit rates of <i>fc/8</i> , <i>fc/4</i> , <i>fc/2</i>
Other								RFU

“

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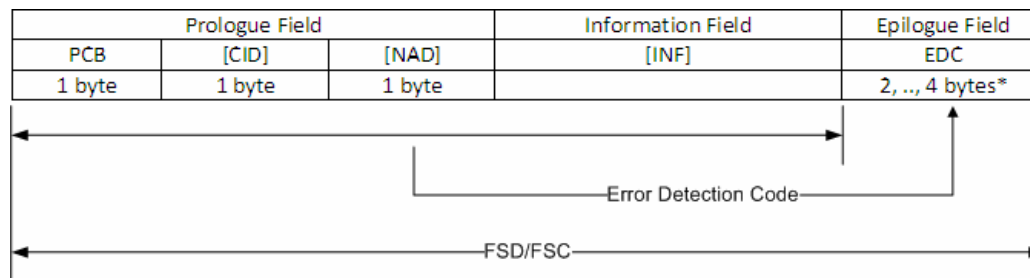
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**Annex A.4**

“



\*2 Bytes for CRC\_A and CRC\_B, 4 Bytes for CRC\_32. Which EDC is used, depends on the selected frame format.”

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## Annex A.5

“

### 1. Frame Format Selection

S(PARAMETERS) blocks shall be used to negotiate the Frame Format. The following rules shall be applied to negotiate those parameters:

- The information field shall contain tags and values as defined in Tables 1-A – 1-D.
- The PCD shall send an S(PARAMETERS) block to request parameters.

If the PICC supports S(PARAMETERS) blocks, the PICC shall respond with an S(PARAMETERS) block containing a list of values for all supported parameters. To indicate supported frame formats the PICC shall list indicator pairs as defined in Table 1-C and 1-D, one pair for each supported PCD to PICC and PICC to PCD frame format. After the PICC has sent its response and has indicated its parameters the PCD may activate one frame format for each communication direction with following rules:

- The information field shall contain tags and values as defined in Tables 1-A – 1-D.
- The PCD shall send an S(PARAMETERS) block to activate desired communication parameters.
- The PICC shall acknowledge the activated parameters with an S(PARAMETERS) block and then shall activate the negotiated parameters.

The PCD shall activate the negotiated parameters.

**Table 1-A: Frame Format Tag Definition**

Tags (Hex)	Description	Length	Value
'A5'	Frame Format	L	Function Tags Identifier (see Table 1.B)

1 **MB** = Member body (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

**NOTE** Columns 1, 2, 4, 5 are compulsory.



1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of comment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations</b> on each comment submitted  <b>Please enter your name here</b>

**Table 1-B: Function Tag Definition**

Tags (Hex)	Description	Length	Value
'8A'	Frame Format Request	0	
'AA'	Frame Format Indication	L	List of supported frame formats from PCD to PICC together with supported frame format from PICC to PCD (see table 1-C and 1-D)
'AB'	Frame Format Activation	L	Selected frame format from PCD to PICC together with selected frame format from PICC to PCD (see table 1-C and 1-D)
'8B'	Frame Format Acknowledgement	0	

**Table 1-C: Support Frame Formats PCD to PICC**

Description	Indicator 1							
	b8	b7	b6	b5	b4	b3	b2	b1
Standard Frame	x	x	x	x	x	x	x	1
Extended Frame	x	x	x	x	x	x	1	x

Note, bits b3 to b8 are RFU and shall be set to '0'.

**Table 1-D: Support Frame Formats PICC to PCD**

Description	Indicator 2							
	b8	b7	b6	b5	b4	b3	b2	b1
Standard Frame	x	x	x	x	x	x	x	1

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2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

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1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of comment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations</b> on each comment submitted  <b>Please enter your name here</b>

Extended Frame	x	x	x	x	x	x	1	x
----------------	---	---	---	---	---	---	---	---

Note, bits b3 to b8 are RFU and shall be set to '0'.

The PICC shall indicate its supported frame formats using tag 'AA' and listing pairs of frame format indicator 1 and frame format indicator 2, one pair for each supported frame format from PCD to PICC communication together with corresponding supported frame format for the PICC to PCD communication. The PCD shall activate the frame format for each communication direction with using tag 'AB' with one pair of indicator 1 (determining PCD to PICC frame format) and indicator 2 (determining PICC to PCD frame format).

As an example the sequence for an activation of the frame format

- Extended frame from PCD to PICC and
- Standard frame for PICC to PCD

with a PICC indicating to support the standard and extended frame for both communication directions. This is illustrated in figure 1:

Step	PCD	PICC
1	S(PARAMETERS)('A5' '02' '8A' '00' <CRC>) →	
2		← S(PARAMETERS) ('A5' '04' 'AA' '02' (00000011)b (00000011)b <CRC>)
3	S(PARAMETERS)('A5' '04' 'AB' '02' (00000010)b (00000001)b <CRC>) →	
4		← S(PARAMETERS)('A5' '02' '8B' '00' <CRC>)

Figure 1 — Change of Frame Format

“

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex (e.g. 3.1)</b>	<b>Paragraph/ Figure/Table/ Note (e.g. Table 1)</b>	<b>Type of com- ment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations on each comment submitted  Please enter your name here</b>

MHe: -> Tag values for TLV coding (AA etc) .. should be confirmed by SC17

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

## Template for comments and secretariat observations

Date: 2011-03-11

Document: JTC1/SC17N4098

ISO/IEC 14443-3(2010)/PDAM 2

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
JP1	Whole documents		GE	<p>JNB's (Japan National Body) stances for VHBR are shown in the following.</p> <p>JNB's comments on JTC 1/SC 17 N3925</p> <p>JNB supports the rational of VHBR (Very High Bit Rate). JNB's positioning and requirements for this project are as follows.</p> <p>(1) Single method</p> <p>- JNB requires that SC 17 should adopt single method for this newly developed VHBR before going to PDAM ballot in order to improve interoperability and to avoid possible market confusion.</p> <p>- Though several methods for VHBR have been contributed in the previous SC 17/WG 8 Meetings, JNB does not support the idea of specifying two or more methods for VHBR. This is because JNB cannot see the purpose, the necessity, the market needs or the users' merits for specifying two or more methods.</p> <p>(2) Backward compatibility with ISO/IEC 14443 series</p> <p>- JNB supports the positioning of VHBR (amendments to ISO/IEC 14443 series, according to the Resolutions 47.02 and 47.03 of Summary Report of the 47th meeting of ISO/IEC JTC 1/SC 17/WG 8).</p> <p><i>47.02 NP for Very High Bit Rate</i>  <i>WG8 instructs its Secretariat to forward the NP for Very High Bit Rate, as laid down in N 1683, to the SC 17 Secretariat for NP balloting process.</i></p> <p><i>47.03 Project Editor for Very High Bit Rate</i>  <i>WG 8 appoints Messrs. Caruana, Meindl and Raggam, the Project Editors for the amendments to 14443-x and</i></p>	<p>Make the standards which are satisfied all following requests (1) to (4).</p>	<p>Resolved</p> <p>Resolved</p>

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

# Template for comments and secretariat observations

Date: 2011-03-11	Document: JTC1/SC17N4098 ISO/IEC 14443-3(2010)/PDAM 2
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1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
				<p>10373-6 regarding Very High Bit Rate.</p> <p>- JNB requires that the bit rates for VHBR should be OPTIONAL as higher bit rates (212k, 424k and 848 kbps) are optional in ISO/IEC 14443-3:2010.</p> <p>(3) Higher layer compatibility</p> <p>- JNB is of the opinion that application based on ISO/IEC 7816 series shall not be excluded even when using VHBR protocol because ISO/IEC 7816-4 (Organization, security and commands for interchange) is one of the normative references for ISO/IEC14443-4.</p> <p>(4) Parameter confirmation "after" the development of test method</p> <p>- JNB requires that the each parameter for VHBR should be fixed after the test method</p>		<p>Resolved by explanation</p> <p>Any APDU of 7816 can also be transmitted by VHBR</p> <p>Postponed and</p> <p>To be checked in TF2 meeting</p> <p>JP1 Resolved in general by discussion at WG8 meeting</p>
JP2	Whole documents		TE	<p>ISO/IEC 14443-4/Amd.2 is related closely with (ISO/IEC14443-2/Amd.1, ISO/IEC 14443-3/Amd.2 and ISO/IEC 10373-6/Amd.x)</p> <p>However, there are many lots of problems in ISO/IEC14443-2/Amd.1 and that technical contents are fixed is premature (see the ballot comments of ISO/IEC14443-2/Amd.1).</p> <p>If proceeding with the other part as it left an un- reviewed part, it is a fear to bring mismatch among the parts.</p> <p>Also, for test methods not to be established, there is not a means of confirming the validity and the reproducibility of the proposal contents in every national bodies.</p>	Synchronize discussion with other parts of 14443 (include test methods).	Acknowledged and confirmed by WG8

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## Template for comments and secretariat observations

Date: 2011-03-11	Document: JTC1/SC17N4098 ISO/IEC 14443-3(2010)/PDAM 2
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1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of com- ment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
JP3	Whole documents		TE	<p>Activation:</p> <p>The close inspection whether or not which uses S(PARAMETER) is insufficient.</p> <p>It depend on about whether or not to set bit durations in the ATTRIB command that it can do the squeezing of the parameter of RF in Part 2.</p>	Judge the validity of the revision of Part 4. after deciding the whole mechanism of switching to VHBR,	More clarification for this issue will be provided by the new text.
JP4	Whole documents		TE	Because the form and the file size of the transmission object to assume with use cases can not be defined, it isn't possible to judge whether or not the extension of the byte numbers of FSD is appropriate.	Define the form and the file size of the transmission object to assume with use cases.	Resolved by Explanation of NWI ballot

JP4

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

[BE] comments on ISO/IEC 14443-4:2010/PDAM 2

1	2	(3)	4	5	(6)	(7)
NB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the NB	Proposed change by the NB	Resolution on each comment
[BE] 1			Te	BE requires 2 RF methods for modulation of VHBR which is in-line with current CDs. In terms of different FCC regulations which will become a critical obstacle for VHBR deployment and in terms of even higher speed PSK is regarded as more promising method whereas ASK will allow fast deployment of prototype systems.		Resolved
[BE] 2						
[BE] 3						
[BE] 4						
[BE] 5						
[BE] 6						
[BE] 7						
[BE] 8						
[BE] 9						
[BE] 10						
[BE] 11						
[BE] 12						
[BE] 13						
[BE] 14						
[BE] 15						
[BE] 16						
[BE] 17						

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

[BE] comments on ISO/IEC 14443-4:2010/PDAM 2

Date: 2011-03-23	Document: <b>SC 17 N4099</b>
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1	2	(3)	4	5	(6)	(7)
NB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of com- ment <sup>2</sup>	Comment (justification for change) by the NB	Proposed change by the NB	Resolution on each comment
[BE] 18						
[BE] 19						
[BE] 20						
[BE] 21						
[BE] 22						
[BE] 23						
[BE] 24						

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1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of com- ment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
NL-1	3.4	Note	ED	Due to the additional introduction of robust extended frames an update of the Note is necessary	“ NOTE The PICC uses per default the standard frame as defined for Type A and Type B, respectively. “	Reject Move to Tf2
NL-2	9	Note	TE	Add Note after Table A.1 and before table A.2 to clarify the unit of the length field.	“Note, the Length field specifies the size of the Value field in bytes. “	Resolved by DE9
NL-3	9	Table A.1	ED	Update Table A.2 to reflect TLV nature	See Annex A.1 below	Resolved by DE10
NL-4	9	Table A.5	TE	For TSC suppression in Type A PICC to PCD communication and Data rate of 8/fc.4/fc, 2/fc replace table A.5	See Annex A.2 below	Resolved by DE11
NL-5	9	Note	TE	Add Note after Table A.5 to clarify if no frame options are selected.	“Note, if no frame options are selected ‘00’ shall be transmitted.”	Resolved by DE12
NL-6	7.1	Figure 14	TE	<i>Part 4, page 15, 7.1 “Block format”</i>  Update Figure14 and add comment	See Annex A.3 below	Resolved by DE13
NL-7	10	Clause	TE	Add new Clause 10 enabling the change between standard and extended frames using S(PARAMETERS) Blocks to increase robustness during data transmission	See Annex A.4 below	Resolved by DE14

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1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of comment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations</b> on each comment submitted

## Annex A1:

Replace Table A.2:

Tags (Hex)	Description	Length	Value		
'8A'	VHBR Request	0			
'AA'	VHBR Indication	L	Tags	Length	Value
			01	L	list of supported bit rates from PCD to PICC together with the corresponding supported bit rates from PICC to PCD (see Table A.3).
			02	L	supported framing options PICC to PCD (see Table A.5)
'AB'	VHBR Activation	L	Tags	Length	Value
			01	L	selected bit rate from PCD to PICC together with selected bit rate from PICC to PCD (see Table A.3)
			02	L	framing options PICC to PCD (see Table A.5)
'8B'	VHBR Acknowledgement	0			

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1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of com- ment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations on each comment submitted</b>

## Annex A.2

“

**Table A.5 — Framing options**

b8	b7	b6	b5	b4	b3	b2	b1	Framing options
X	X	X	X	X	X	X	1	Start Bit suppression from PICC to PCD
X	X	X	X	X	X	1	X	Stop Bit suppression from PICC to PCD
X	X	X	X	X	1	X	X	SOF suppression from PICC to PCD
X	X	X	X	1	X	X	X	EOF suppression from PICC to PCD
X	X	X	1	X	X	X	X	Type A TSC Suppression from PICC to PCD for bit rates of $fc/8$ , $fc/4$ , $fc/2$
Other								RFU

“

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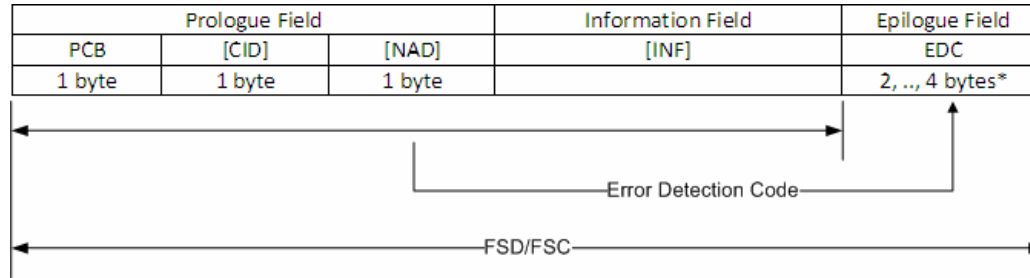
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**NOTE** Columns 1, 2, 4, 5 are compulsory.

1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of comment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations</b> on each comment submitted

### Annex A.3

“



\*2 Bytes for CRC\_A and CRC\_B, 4 Bytes for CRC\_32. Which EDC is used, depends on the selected frame format.”

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1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex (e.g. 3.1)</b>	<b>Paragraph/ Figure/Table/ Note (e.g. Table 1)</b>	<b>Type of com- ment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations on each comment submitted</b>

## Annex A.4

“

### 1. Frame Format Selection

S(PARAMETERS) blocks shall be used to negotiate the Frame Format. The following rules shall be applied to negotiate those parameters:

- The information field shall contain tags and values as defined in Tables 1-A – 1-D.
- The PCD shall send an S(PARAMETERS) block to request parameters.

If the PICC supports S(PARAMETERS) blocks, the PICC shall respond with an S(PARAMETERS) block containing a list of values for all supported parameters. To indicate supported frame formats the PICC shall list indicator pairs as defined in Table 1-C and 1-D, one pair for each supported PCD to PICC and PICC to PCD frame format. After the PICC has sent its response and has indicated its parameters the PCD may activate one frame format for each communication direction with following rules:

- The information field shall contain tags and values as defined in Tables 1-A – 1-D.
- The PCD shall send an S(PARAMETERS) block to activate desired communication parameters.
- The PICC shall acknowledge the activated parameters with an S(PARAMETERS) block and then shall activate the negotiated parameters.

The PCD shall activate the negotiated parameters.

**Table 1-A: Frame Format Tag Definition**

Tags (Hex)	Description	Length	Value
'A5'	Frame Format	L	Function Tags Identifier (see Table 1.B)

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**NOTE** Columns 1, 2, 4, 5 are compulsory.

1	2	(3)	4	5	(6)	(7)
<b>MB<sup>1</sup></b>	<b>Clause No./ Subclause No./ Annex</b> (e.g. 3.1)	<b>Paragraph/ Figure/Table/ Note</b> (e.g. Table 1)	<b>Type of com- ment<sup>2</sup></b>	<b>Comment (justification for change) by the MB</b>	<b>Proposed change by the MB</b>	<b>Secretariat observations on each comment submitted</b>

Table 1-B: Function Tag Definition

Tags (Hex)	Description	Length	Value
'8A'	Frame Format Request	0	
'AA'	Frame Format Indication	L	List of supported frame formats from PCD to PICC together with supported frame format from PICC to PCD (see table 1-C and 1-D)
'AB'	Frame Format Activation	L	Selected frame format from PCD to PICC together with selected frame format from PICC to PCD (see table 1-C and 1-D)
'8B'	Frame Format Acknowledgement	0	

Table 1-C: Support Frame Formats PCD to PICC

Description	Indicator 1							
	b8	b7	b6	b5	b4	b3	b2	b1
Standard Frame	x	x	x	x	x	x	x	1
Extended Frame	x	x	x	x	x	x	1	x

Note, bits b3 to b8 are RFU and shall be set to '0'.

Table 1-D: Support Frame Formats PICC to PCD

Description	Indicator 2							
	b8	b7	b6	b5	b4	b3	b2	b1
Standard Frame	x	x	x	x	x	x	x	1

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2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

**NOTE** Columns 1, 2, 4, 5 are compulsory.

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted

Extended Frame	x	x	x	x	x	x	1	x
----------------	---	---	---	---	---	---	---	---

Note, bits b3 to b8 are RFU and shall be set to '0'.

The PICC shall indicate its supported frame formats using tag 'AA' and listing pairs of frame format indicator 1 and frame format indicator 2, one pair for each supported frame format from PCD to PICC communication together with corresponding supported frame format for the PICC to PCD communication. The PCD shall activate the frame format for each communication direction with using tag 'AB' with one pair of indicator 1 (determining PCD to PICC frame format) and indicator 2 (determining PICC to PCD frame format).

As an example the sequence for an activation of the frame format

— Extended frame from PCD to PICC and

— Standard frame for PICC to PCD

with a PICC indicating to support the standard and extended frame for both communication directions. This is illustrated in figure 1:

Step	PCD	PICC
1	S(PARAMETERS)('A5' '02' '8A' '00' <CRC>)	→
2		← S(PARAMETERS) ( 'A5' '04' 'AA' '02' (00000011)b (00000011)b <CRC>)
3	S(PARAMETERS)('A5' '04' 'AB' '02' (00000010)b (00000001)b <CRC>)	→
4		← S(PARAMETERS)('A5' '02' '8B' '00' <CRC>)

**Figure 1 — Change of Frame Format**

“

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1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
AT1	3.4	Note	ED	Due to the additional introduction of robust extended frames an update of the Note is necessary	“ NOTE The PICC uses per default the standard frame as defined for Type A and Type B, respectively. “	Resolved
AT2	Page 4, Clause 5	Second dash	ED	“at PICC” is redundant	Replace second dash in 5 by: “The SAK byte shall be checked if the PICC is compliant with ISO/IEC 14443-4. The SAK byte is defined in ISO/IEC 14443-3.	accepted
AT3	Page 4, Clause 5	Third dash	ED	This information is ambiguous, as long as PICC can always be set to HALT state from ACTIVE state as defined in ISO/IEC 14443-3	Either Remove third dash in 5 or replace third dash in 5 by: “The PICC may be set to HALT state, using the HLTA command as defined in ISO/IEC 14443-3”	Accepted with 2 <sup>nd</sup> option
AT4	Page 4, Clause 5	Fourth dash	ED	There is no definition for ATS available	Replace fourth dash in 5 by: “If PICC is compliant to ISO/IEC14443-4 the RATS may be sent by the PCD as next command after receiving the SAK.”	accepted
AT5	Page 4, Clause 5	New dash	ED	Everything is specified in dash 3 (see IFX 3)	Do not add this dash, especially not after the end of fourth dash in 5. If needed, insert this new dash after third dash.	accepted
AT6	Clause 5	Figure 1	ed	The only thing which is new in the figure is “and SELECT” so just describe this instead of providing new figure	Replace bubble “Anticollision Loop” with new bubble “Anticollision Loop and SELECT”	accepted
AT7	New clause 9	Table A.3	te	2ASK1 is missing	Insert line in Table A.3 for 2ASK1	withdrawn

1 MB = Member body (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 Type of comment: ge = general te = technical ed = editorial

NOTE Columns 1, 2, 4, 5 are compulsory.