ISO/IEC JTC1/SC17/WG8 Contactless Integrated circuit(s) cards

Disposition of comments on: FCD ISO/IEC 14443-4:2008/FPDAM2 dentification cards — Contactless integrated circuit(s) cards — Proximity cards — Part 4: Transmission protocol — AMENDMENT 2: Bit rates of fc/8, fc/4 and fc/2, protocol activation of PICC Type A and frame sizes from 512 to 4096 bytes

# **Reference documents:**

Ballot is in SC17 N 4214 = WG8 N 1826 Ballot Result is in SC17 N 4321 = WG8 N 1840

# **Project Editor:**

Reinhard Meindl, Austria

The following pages provide the details of the comments and detailed information about their resolutions, how WG8 had tried to resolve each received comment from the FCD Ballot (FPDAM) at the WG8 meeting held in Song-Do, Korea, on 2011-09-28/30. WG8 had resolved the negative vote from Japan and tried its best to resolve the negative votes from Belgium and the Netherlands.

According to the advice from the SC17 Secretariat WG8 decided by WG8 Resolution 50.05 (contained in WG8 N 1847) to issue the new text of 14443-4:2008/Amd.2, i.e. WG8 N 1855, for FDIS 14443-4:2008/FDAM2 balloting.

Date: 2011-09-28

All comments to : JTC1/SC17N4214

ISO/IEC 14443-4(2008)/FPDAM2

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/N ote (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
JP1	Whole documents		ge	It is not clear at FPDAM ballot stage whether there are any known patents regarding ISO/IEC 14443- 4:2008/Amd.2. Even though ISO/IEC takes no position concerning the evidence, validity and scope of the patents, the patents known at this time should be disclosed.	Disclose patents regarding ISO/IEC 14443- 4:2008/Amd.2.	Resolved By checking with wg8 delegates are known to them
JP2	Whole documents		te	Before the test method for VHBR is fixed, it is difficult to determine parameters for VHBR. The test method for VHBR should be developed concurrent with ISO/IEC 14443-4:2008/Amd.2 to confirm its reproducibility and feasibility.	Resolved	
JP3	Whole documents		ed	For consistency regarding hexadecimal noteation.	Use the same style of hexadicimal notation.	Accepted
BE1	Whole		TE	The Belgium comment on CD ballot as not properly addressed and consequently this comment has not been resolved so far.	There is a need for both ASK and PSK methods for all data rates (e.g. fc/8, fc/4, fc/2, 3fc/4 and fc) in order to optimize for local requirements. Worldwide Interoperability shall be achieved by mandating both methods for the PCD and allowing the PICC to adapt to local requirements with different methods. In order to keep the specification consistent both technologies ASK and PSK shall be specified in the same amendment as authorized by the NP. The separation as performed in Ispra was never authorized.	Rejected See BE1 of DoC of 14443- 2/Amd 3
NL1	Whole		GE	The contents of the CD ballots contained specifications for ASK and PSK for each individual very high data rate. There is substantial need for the PSK technology in the	Turn back and specify both ASK and PSK methods for all data rates (e.g. fc/8, fc/4, fc/2, 3fc/4 and fc)	Rejected See NL1 of DoC of 14443-

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ISO/IEC 14443-4(2008)/FPDAM2

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				Netherlands which is now discriminated by WG8 during the comment resolution. The provided specification for PSK on fc/8, fc/4 and fc/2 were eliminated against the explicit request of NL to keep them in the standard.		2/Amd 3
				This decision may lead to the situation that a leading VHBR technology for PICCs will be deployed outside of ISO 14443 specifications.		
				The Dutch industry which may serve the vast majority of the relevant world market requests PSK technology being treated in the same and fair way as the alternative.		
NL2	Whole		GE	The separation of ASK and PSK specifications into 8 separate documents is rather confusing than supportive for efficient reading and implementation. Also it was never authorized by ISO and in the related NP approvals	Please specify both ASK and PSK methods for all data rates (e.g. fc/8, fc/4, fc/2, 3fc/4 and fc) in the same amendments, one for each part of the standard.	Rejected See NL2 of DoC of 14443- 2/Amd 3
FR1	Title	Front page and 1 <sup>st</sup> page and	ED	Consistency with 14443-3/FPDAM2 and with title in French	Replace "and frame size <mark>s</mark> from 512 to 4096 bytes" with "and frame size from 512 to 4096 bytes"	accepted
JP4	5	New dash	te	New dash, which is specified in PDAM 14443- 4:2008/Amd.2 is missing(See JP Annex-1) Deleting the new dash is out of consensus between the delegates of SC17/WG8 Ispra Meeting.	Add following new dash " — The PICC may be set to HALT state, using the HLTA command as defined in ISO/IEC 14443-3, if no ISO/IEC 14443-4 protocol is used at PCD. "	Resolved By modification of 3 <sup>rd</sup> dash and adding a note This dash describes optional behaviour only
JP5	5	Figure 1	te	The new Figure 1, which is specified in PDAM 14443- 4:2008/Amd.2 is missing(See JP Annex-2). Deleting the new Figure 1 is out of consensus between	Insert the new Figure 1 as described in PDAM 1443-4:2008/Amd.2.	Resolved By new figure

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ISO/IEC 14443-4(2008)/FPDAM2

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				the delegates of SC17/WG8 Ispra Meeting.		
	<sup>2</sup> g 6 <sup>2</sup> g 7	5.1 5.2.3	т	Current words can cause implementation confusion. Since values D-F are stated to be non-compliant. Then it makes no sense to also state that D-F should be interpreted as 4096 bytes	Remove "Until the RFU values 'D' - 'F' are assigned by ISO/IEC, a PICC receiving value of FSDI = 'D' - 'F' should interpret it as FSDI = 'C' (4096 bytes)."	Resolved By DoC to part 3
JP6	5.1 and	Pages 6 and	ed	"4096 bytes" are FSD value.	Replace "(4096 bytes)" by "(FSD=4096 bytes)".	Accepted
	7,5.2.3	7				Comment is applied also in other locations of the text of Part 3
FR2	5.2.3		ed	Consistency with other amendments	Replace "4 <sup>th</sup> " with "fourth" and so on in the document	Accepted
AT1	Clause 7.1.1	Figure 17	ED	It is only indirectly stated that if b2 is set to 0, b6b5 shall be (00)b	Add paragraph before "Page 24, after 8.2" " Page 16, Figure 17 Add new line to description of b6b5: "if b2 = (0)b, (00)b PARAMETERS"	Resolved by planned corrigendum to amd 4 and new coding b(2)=0 and (11) for b5b6
	AMD Page 2, Clause 9	Caption of Table 4	ED	VHBR is not defined within ISO/IEC 14443 and you can select high bit rates (up to fc/16) with this mechanism, too.	Replace Caption with: "Table 4 – Bit Rates Tag Definition"	Accepted
	AMD Page 2, Clause 9	Table 4	ED	VHBR is not defined within ISO/IEC 14443 and you can select high bit rates (up to fc/16) with this mechanism, too.	Replace "VHBR" with: "Bit Rates"	Accepted
AT4	AMD Page 3, Clause 9	Table 5	ED	VHBR is not defined within ISO/IEC 14443 and you can select high bit rates (up to fc/16) with this mechanism, too.	Replace "VHBR" with: "Bit Rates" four times	Accepted
AT5	AMD Page 3,	Table 5	ed	Typo. Use singular in VHBR Activation row.	Replace "bit rates" with:	Accepted

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ISO/IEC 14443-4(2008)/FPDAM2

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	Clause 9				"bit rate", two times	
US2	Sec 9	Table 6	E	Please edit to reflect "x" not "r".	Second byte, bit 2, appears to be an error As referenced "r" should be "x"	Accepted
FR3	Clause 9	Title and 1 <sup>st</sup> sentence	ED	S(PARAMETERS): - shall be used to negotiate bit rates of fc/8, fc/4 and fc/2 and some framing options (training sequence) - may be used as an alternative method to negotiate bit rates up to fc/16 and some framing options (start bit)	Change the title to "Activation of bit rates and framing options after anticollision" or "Activation of bit rates and framing options in the PROTOCOL state". Update first sentence to explain that S(PARAMETERS) are the only way to activate bit rates higher than fc/16 and an alternative way to activate bit rates up to fc/16.	Accepted
FR4	Clause 9	1 <sup>st</sup> note	ED	ISO rules	Replace "NOTE" with "NOTE 1" and add a number to all notes in this clause Replace "ISO/IEC 14443-4/Amd 1" with "ISO/IEC 14443-4:2008/Amd.1:2011"	Accepted
JP7	9	1st NOTE	ed	<ul><li>(1) Period is missing.</li><li>(2) For consistency.</li></ul>	For (1) and (2), replace "S(PARAMETERS) block is defined in ISO/IEC 14443-4/Amd 1" by "S(PARAMETERS) block is defined in ISO/IEC 14443-4/Amd.1."	Resolved By FR4
JP8	9	2nd NOTE	ed	<ul><li>(1) "Subclause 5.32" does not exist in ISO/IEC 7816- 4:2005.</li><li>(2) Period is missing</li></ul>	For (1), correct the reference subclause. For (2), insert period after " BER-TLV".	Resolved by Removing reference And acceptance of (2)
JP9	9		ed	The FR3 comment, which was "resoved" by project editor (see ISO/IEC JTC1/SC17 N 4218), has not been properly reflected in FPDAM document. Note that "an S()" is used in the base standard	Replace "a S()" by "an S()".	Accepted

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ISO/IEC 14443-4(2008)/FPDAM2

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				(ISO/IEC 14443-4:2008).		
JP10	9	Table 5	te	<ul> <li>(1) Using Tags 01, 02, 03 in "Value" are contrary to ISO/IEC 7816-4:2005. As other Tags defined in ISO/IEC 14443-4:2008/Amd.2, the class for these three tags should be context-specific class, defined in ISO/IEC 7816(See JP Annex-3). Therefore, regarding these three Tags, there is never case using '0' for 1st byte of BER- TLV tag.</li> <li>(2) Tags in "Value" should be described in Hexadicimal notation.</li> <li>(3) The length "L" in the column of "Value" ambigeous. This length should be a fixed value because the length of "supported bit rates from PCD to PICC", "supported bit rates from PICC to PCD" and " supported framing options PICC to PCD" in this document in this document are, 2Bytes, 1Byte, and 1Byte, respectively.</li> </ul>	For (1), set the correct Tags. If this requrement is accepted, update Figure 23(VHBR activation example) accordingly. For (2), replace "Tags" by "Tags(Hex)". For (3), insert the concrete figure on each "L".	Resolved by WG4 decision
FR5	Clause 9	Table 5	ed	Values are hexadecimal	Add "(Hex)" below "Tags" in 4 <sup>th</sup> column Replace 01 with '01' and so on in Tags column	Accepted
FR6	Clause 9	Table 6 title	ed	Consistency with table 5 rows	Replace "Supported bit rates PCD to PICC" with "Supported bit rates from PCD to PICC"	Resolved By removing table 6
FR7	Clause 9	Table 6	ed	typo	Replace "r" with "x" in the 7 <sup>th</sup> cell of fc/64 row	Resolved by US2
FR8	Clause 9	Table 6	ED	The RFU definition is not clear. Some RFU bits should be set to 0.	Make clear RFU definition, e.g. replace all 'x' in 2 <sup>nd</sup> byte and in b8 of 1 <sup>st</sup> byte with '0' and/or indicate that these bits are RFU.	Resolved
UK1	Clause 9	Table 6	ed	Spurious r in table and why does Byte 2 precedes Byte 1	Replace r with x Clarify intention of byte reversal?	Resolved by US2

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FR9	Clause 9	Table 7	ED	An additional byte would allow more RFU for future bit rates	Add a byte unless only 1 single future bit rate is expected	Resolved by new figure	
JP11	9	Table 6, Table 7(and Figure 23)	te	<ul> <li>(1) Issue of asymmetric highest bit rate (PCD to PICC/PICC to PCD).</li> <li>JNB(Japan National Body) recognizes that the positioning for "the 2nd byte" in the value in Table 6 is intended for future extention (e.g. Supported bit rates higher than <i>fc</i>/2 for PCD to PICC communidation)</li> <li>If so, the future possible value for describing "Supported bit rates higher than <i>fc</i>/2 for PICC to PCD) should not be excluded even though the document for "&gt; fc/2" is separeted from this draft.</li> <li>(2) In Table 7, the technical meaning for assigning "b8=(1)b" for RFU is not clear. The value(s) for RFU should be "don't care" value. Even if this is intended for future extention(e.g. Supported bit rates higher than <i>fc</i>/2 for PCD to PICC communidation), assigning only one bit for "&gt; fc/2" will be insufficient.</li> </ul>	For (1) and (2), replace Table 7(Supported bit rates PICC to PCD) by the table described in [JP Annex-4]. If this requrement is accepted, update Figure 23(VHBR activation example) accordingly.	Resolved By FR9	
AT6	AMD Page 5, Clause 9	Figure 23	ED	VHBR is not defined within ISO/IEC 14443 and you can select high bit rates (up to fc/16) with this mechanism, too.	Replace "VHBR" with: "Bit Rates"	Accepted	
JP12	9	Table 6	ed	Typing error in the row of <i>fc</i> /64 (See JP Annex-5).	Replace "r" by "x".	Accepted	
JP13	9	Table 8	ed	For consistency.	Replace "ISO/IEC 14443-2/Amd 3" by "ISO/IEC 14443-2/Amd.3"	Accepted	
FR10	Clause 9	Table 8	ED	The RFU definition is not clear. Maybe some RFU bits	Make clear RFU definition	Accepted	

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				should be set to 0 until use by ISO;		
FR11	Clause 9	3rd note	ED	A note cannot contain a "shall"	Replace "shall" with "should"	Accepted
FR12	Clause 9	Last paragraph	ed	Typos and clarification	Replace "with a PICC indicating to support bit rates fc/128, fc/16 and fc/8 for PCD to PICC communication and supporting bit rates fc/128, fc/16 and fc/2 and indicating no framing options is illustrated in Figure 23:" with "with a PICC indicating to support bit rates fc/128, fc/16 and fc/8 for PCD to PICC communication, supporting bit rates fc/128, fc/16 and fc/2 for PICC to PCD communication and indicating no framing options is illustrated in Figure 23."	Resolved

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# [JP Annex-1] PDAM 14443-4:2008/Amd.2 Amendment 2: Activation of bit rates up to *fc*, protocol activation of PICC Type A and increased frame size

Page 4, Clause 5

Replace the second, third and fourth dash of 5 with:

- The SAK byte shall be checked for availability of an ATS at PICC. The SAK byte is defined in ISO/IEC 14443-3.
- The PICC may be set to HALT state, using the HLTA command as defined in ISO/IEC 14443-3, if no ATS
  is available at PICC.
- The RATS may be sent by the PCD as next command after receiving the SAK if an ATS is available at PICC.

Add new dash after the end of fourth dash of 5 with following:

- The PICC may be set to HALT state, using the HLTA command as defined in ISO/IEC 14443-3, if no ISO/IEC 14443-4 protocol is used at PCD.
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Date: 2011-09-28

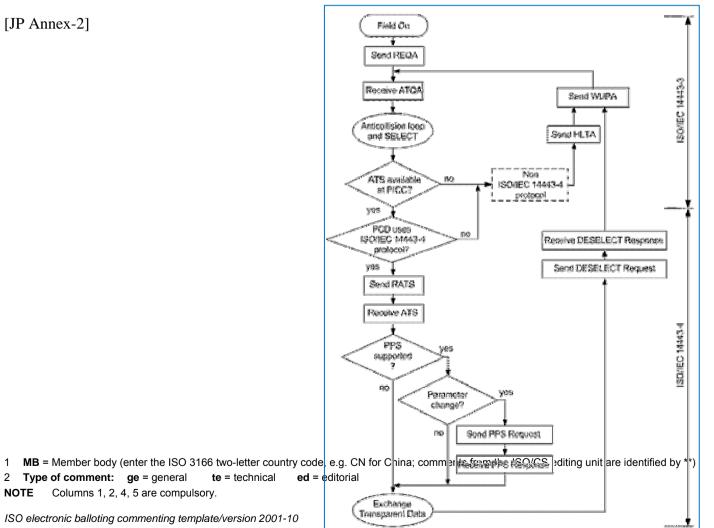
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[JP Annex-2]

2 Type of comment: ge = general



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ISO/IEC 14443-4(2008)/FPDAM2

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[JP Annex-3] Table 7 of ISO/IEC 7816-4:2005

	b8	b7	b6	b5	b4	b3	b2	b1	Meaning	
ſ	0	0	-	-	-	-	-	-	Universal class, not defined in ISO/IEC 7816	
	0	1	-	-	-	-	-	-	Application class, identification defined in this document	
Π	1	0	-	-	-	-	-	-	Context-specific class, defined in ISO/IEC 7816	
Т	1	1	-	-	-	-	-	-	Private class, not defined in ISO/IEC 7816	
ſ	-	-	0	-	-	-	-	-	Primitive encoding	]
	-	-	1	-	-	-	-	-	Constructed encoding	
ſ	-	-	-	Not all set to 1			Tag number from zero to thirty (short tag field, i.e., a single byte)	1		
	-	-	-	1	1	1	1	1	Tag number greater than thirty (long tag field, i.e., two or three bytes)	

# Table 7 — First byte of BER-TLV tag fields in ISO/IEC 7816

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# [JP Annex-4]

# Table 7 — Supported bit rates PICC to PCD

2nd byte											1st	byte	Supported bit rates PICC to PCD			
b8	b7	b6	b5	b4	b3	b2	b1	b8	b7	b6	b5	b4	b3	b2	b1	
x	x	x	x	x	x	x	x	х	x	х	х	х	x	x	1	fc / 128
х	x	x	x	x	x	x	x	x	х	х	х	х	x	1	x	fc / 64
х	x	x	x	x	x	x	x	x	х	х	х	х	1	x	x	fc / 32
х	x	x	x	x	x	x	x	x	x	x	x	1	x	x	x	<i>fc</i> / 16
x	x	x	x	x	x	x	x	x	x	x	1	x	x	x	x	fc / 8
x	x	x	x	x	x	x	x	x	x	1	x	x	x	x	x	fc / 4
x	x	x	x	x	x	x	x	x	1	x	x	х	x	x	x	fc / 2
	Other												RFU			

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[JP Annex-5]

2 <sup>nd</sup> byte										1 <sup>st</sup> I	oyte				Supported bit rates DCD to DICC	
<b>b</b> 8	b7	b6	b5	b4	b3	b2	b1	b8	b7	b6	b5	b4	b3	b2	b1	Supported bit rates PCD to PICC
x	x	x	x	x	x	х	x	x	x	x	x	x	x	х	1	fc / 128
x	x	x	x	х	x	r		x	x	x	х	x	x	1	x	fc / 64
х	x	x	x	х	x	х	х	x	x	x	х	x	1	х	x	fc / 32
x	x	x	x	х	x	х	x	x	x	x	х	1	x	х	x	fc / 16
x	х	x	x	х	x	х	x	x	x	x	1	x	x	х	х	fc / 8
х	х	x	x	х	x	х	x	x	x	1	х	x	x	х	х	fc / 4
x	х	x	x	х	x	х	x	x	1	x	х	x	x	х	x	fc / 2
	Other												RFU			

# Table 6 — Supported bit rates PCD to PICC

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