

**Disposition of comments on:
FCD ISO/IEC 14443-3:2011/FPDAM2 — Identification cards —
Contactless integrated circuit(s) cards — Proximity cards — Part 3:
Initialization and anticollision — AMENDMENT 2: Bit rates of fc/8,
fc/4 and fc/2 and frame size from 512 to 4096 bytes**

Reference documents:

Ballot is in SC17 N 4213 = WG8 N 1825
Ballot Result is in SC17 N 4318 = WG8 N 1839

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 50.04 (contained in WG8 N 1847) to issue the new text of 14443-3:2011/Amd.2, i.e. WG8 N 1853, for FDIS 14443-3:2011/FPDAM2 balloting.

Template for comments and secretariat observations

Date: 2011-09-28	All comments to: JTC1/SC17N4213 ISO/IEC 14443-3(2011)/FPDAM2
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1	2	(3)	4	5	(6)	(7)
MB ¹	Clause No./ Subclause No./ Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note (e.g. Table 1)	Type of comment ²	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 14443-3/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 14443-3/Amd.2.	Resolved See JP1 of DoC of 14443-2/Amd 3
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 14443-3/Amd.2 to confirm its reproducibility and feasibility.	Prior to the next ballot stage, fix the test method for VHBR.	Resolved See JP2 of DoC of 14443-2/Amd 3
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 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	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 14443-2/Amd 3

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				<p>explicit request of NL to keep them in the standard.</p> <p>This decision may lead to the situation that a leading VHBR technology for PICCs will be deployed outside of ISO 14443 specifications.</p> <p>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.</p>		
NL2	Whole		GE	<p>The separation of ASK and PSK specifications into 8 separate documents is rather confusing than supportive for efficient reading and implementation.</p> <p>Also it was never authorized by ISO and in the related NP approvals</p>	<p>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.</p>	<p>Rejected</p> <p>See NL2 of DoC of 14443-2/Amd 3</p>
FR1	6.1	Table 1	ED	<p>Consistency in number of significant digits for approximate etu duration and bit rates (within this amendment and with 14443-2/FPDAM3)</p>	<p>Replace "(~0,6 μs)" with "(~0,59 μs)"</p> <p>Replace "(~0,3 μs)" with "(~0,29 μs)"</p> <p>Replace "(~0,2 μs)" with "(~0,15 μs)"</p> <p>Replace "(~1,7 Mbit/s)" with "(~1,70 Mbit/s)"</p>	<p>Accepted</p>
JP3	6.1, 7.1.4, 7.1.5, 7.1.6, 7.9.4.6, and 7.10.4		ed	<p>Page numbers are wrong.</p>	<p>Replace "Page 5, 6.1" by "Page 6, 6.1",</p> <p>"Page 25, 7.1.4" by "Page 26, 7.1.4"</p> <p>"Page 26, 7.1.5" by "Page 27, 7.1.5"</p> <p>"Page 27, 7.1.6" by "Page 28, 7.1.6"</p> <p>"Page 41, 7.9.4.6" by "Page 42, 7.9.4.6"</p> <p>and "Page 45, 7.10.4" by "Page 44, 7.10.4"</p>	<p>Accepted</p>

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JP4	6.1	2nd paragraph	ed	For font style consistency.	Replace "fc/128" by " <i>fc/128</i> ".	Accepted
JP5	6.1	2nd sentence	te	The technical meaning for "If a bit rate higher than fc/16 is selected for PCD to PICC communication, then a bit rate higher than fc/128 shall be selected for PICC to PCD communication." is not clear.	Remove this sentence.	Resolved By adding a note And WG8 thinks that the excluded combination of bit rates may not be worth the big effort to add specific requirements which would be needed
JP6	6.1	Table 1	te	(1) Basically, the purpose of "Table 1 — Bit rates" in Clause 6(Type A – Initialization and anticollision) is to specify Type-A. New "Figure 1" which includes Type-B and VHBR is out of its basic purpose. (2) Significant figures in VHBR are inconsistent.	(1) Insert the following sentence after the NOTE. "Figure 1 applies commonly to Type-A and Type-B". (2) Replace (~ 1,7 Mbit/s) by (~ 1,70 Mbit/s).	Resolved
AT1	Page 7	6.2.1.1	ED	There is no pause for bit rates greater than fc/16.	Add following paragraph before "Page 7, 6.2.1.1" " Page 7, 6.2.1.1, Add sentence after first paragraph "For bit rates of fc/8, fc/4 and fc/2 the FDT starts at the end of the last modulation transmitted by the PCD." "	Accepted
AT2	Page 7	6.2.1.1, Figure 1	ED	Figure illustrates only FDT bit rates <= fc/16	Add following paragraph before "Page 7, 6.2.1.1" "	Accepted

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					Page 7, 6.2.1.1, Figure 1 Change title of Figure 1 to "Frame Delay Time PCD to PICC for bit rates up to $f_c / 16$ " "	
AT3	Page 7	6.2.1.1	ED	Definition for FDT PCD to PICC needs to be extended for bitrates $> f_c/16$	Add following paragraph before "Page 8, 6.2.3" " Page 7, 6.2.1.1, First paragraph below Table 2 Replace first paragraph with "The FDT measurement starts at the beginning of the rising edge as specified in ISO/IEC 14443-2 and illustrated with small circles in Figure 3 for bit rate $f_c / 128$, Figure 6 for bit rates of $f_c / 64$, $f_c / 32$ and $f_c / 16$ and Figure 12 for bit rates of $f_c / 8$, $f_c / 4$ and $f_c / 2$." "	Resolved
AT4	Page 7	6.2.1.2	ED	There is no pause for bit rates greater than $f_c/16$.	Add following paragraph before "Page 8, 6.2.3" " Page 7, 6.2.1.2, Add sentence after first paragraph "For bit rates of $f_c/8$, $f_c/4$ and $f_c/2$ the FDT ends at the first modulation transmitted by the PCD." "	Resolved
AT5	Page 8	6.2.3.2	ED	In Figure 3 PCD standard frames of bitrates $f_c/128$, $f_c/64$,	Add following paragraph before "Page 9, 6.2.3.2"	Resolved

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				fc/32 and fc/16 are shown	" Page 8, 6.2.3.2 Replace "The PCD standard frame is illustrated in Figure 3." with "The PCD standard frame used for bit rates <i>fc</i> / 128, <i>fc</i> / 64, <i>fc</i> / 32 and <i>fc</i> / 16 is illustrated in Figure 3." Remove "PCD Standard Frame" in Figure 3. Replace figure title with "PCD standard frame for bit rates <i>fc</i> / 128, <i>fc</i> / 64, <i>fc</i> / 32 and <i>fc</i> / 16" "	
JP7	6.2.3.2	Figure 3	te	In ISO/IEC 14443-2/Amd.3, "training sequence" is to be introduced. However, the positioning of "training sequence" is not clear in PCD standard frame. - Is the frame containing "training sequence" considered to be "PCD standard frame" or not? - Is "training sequence" a part of "Start of communication(S)" defined in ISO/IEC14443-3 Type-A? If it is not, the relation between "FDT (Frame delay time) defined in ISO/IEC 14443-3 Type-A" and "training sequence" should be clarified.	Clarify the positioning of "training sequence" also in ISO/IEC 14443-3/Amd.2 and add it as a NOTE.	Resolved by DE2 of 14443-2/Amd 3

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FR2	6.2.3.2		ed	Consistency with other amendments	Replace "3 rd " with "third" and so on in the document	Accepted
JP8	6.2.3.3	Title	ed	For font style consistency.	Replace "6.2.3.4 PCD standard frames for bit rates of <i>fc</i> /8, <i>fc</i> /4 and <i>fc</i> /2" by "6.2.3.4 PCD standard frames for bit rates of <i>fc</i> /8, <i>fc</i> /4 and <i>fc</i> /2".	Accepted
AT6	Page 24	7.1.2	te	For synchronisation purposes only integer number of etus should be used for EGT. For bit rates > <i>fc</i> /16 there should be no character separation.	<p>Add following paragraph before "Page 26, 7.1.5"</p> <p>"</p> <p>Page 24, 7.1.2</p> <p>Make two new sub clauses in 7.1.2.</p> <p>The first is:</p> <p>"7.1.2.1 Character separation for bit rates up to <i>fc</i> / 16" containing complete previous clause 7.1.2.</p> <p>At the end of this new clause 7.1.2.1 add Note:</p> <p>"NOTE Integer number of etu for EGT should be used for all bit rates. Non integer values may not be accepted in future revisions of this standard."</p> <p>The second is:</p> <p>"7.1.2.2 Character separation for bit rates of <i>fc</i> / 8, <i>fc</i> / 4 and <i>fc</i> / 2</p> <p>No character separation shall be applied."</p> <p>"</p>	Resolved

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JP9	7.1.6		ed	According to ISO/IEC FDIS 14443-3:2009, The maximum value or TR1 is 200 / fs(~ 236µs).	Add the following sentence The maximum value or TR1 is 3200 / fc(~ 236µs).	Resolved by AT7
AT7	Page 27	7.1.6	ED	As long as sub carrier frequency is increased for bitrates > fc/16, the given time in us is not valid anymore	Add following paragraph before "Page 27, 7.1.6" " Page 27, 7.1.6 " Remove informative timing information "(~236us)" in the last sentence before figure 17 "	Accepted
JP10	7.9.4.5	"NOTE 2"	te	The purpose and necessity for inserting "NOTE 2" is unclear. There seem to be no consideration for CRC_A efficiency when the frame size increases. Mentioning CRC_B only in "NOTE 2" may mislead the readers to "CRC_B efficiency is inferior to CRC_A efficiency". Even there is no "NOTE 2" in ISO/IEC 14443-3/Amd.2, the future possibility for specifying improved method(s) will not be excluded. "NOTE 2: CRC_B efficiency decreases when the frame size increases. Improved optional error detection and correction methods may be defined in future."	Remove "NOTE 2".	Accepted
FR3	7.9.4.5		ed	ISO style	Reapply the NOTE style to NOTE 2 (and delete the colon)	Resolved by JP10
UK1	7.9.4.5	Table 28	te	Why be prescriptive about RFU values D – F	Remove > 4096 in column D – F	Accepted

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US1	Pg 41	7.9.4.5	T	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 Modifying the note of the base standard
US3	Pg 41	7.9.4.5, Table 28 & 34	T	To be consistent with other sections of part 3 and part 2 per handling of the RFU D-F	Remove in Table 28 & 34 ">4096"	Resolved by UK1
JP11	7.9.4.6	NOTE	ed	For consistency.	Replace "ISO/IEC 14443-4:2008/Amd 2" by "ISO/IEC 14443-4:2008/Amd.2".	Accepted
AT8	Page 4 in AMD	7.9.4.5	ED	Renaming Note to Note 1 is not enough. The values have to be adopted according to remaining RFU values.	Replace "Rename Note ... at the end: With "Rename Note to Note 1, correct the RFU values to 'D' - 'F' and add a note at the end:"	Accepted
FR4	7.9.4.6		ed	Typo	Delete the comma after S(PARAMETERS)	Accepted
JP12	7.10.3.1	Table 30	te	There is an inconsistency with Minimum TR0 defined in ISO/IEC14443-3:2011.(See JP-Annex1). This difference has not been discussed in the previous SC17/WG8 Meetings - 512/fc for (b8, b7) =(01) with bit rate of (> fc/128) corresponds to 32/fs; which is inconsistent with those with bit rate of fc/32 and fc/16 as defined in ISO/IEC 14443-3:2011. - 256/fc for (b8, b7) =(10) with bit rate of (> fc/128) corresponds to 16/fs; which is inconsistent with those with bit rate of fc/64, fc/32 and fc/16 as defined in ISO/IEC	Keep Minimum TR0 for bit rate up to fc/16 as it is in ISO/IEC 14443-3:2011.	Resolved by Changing the title and adding a warning because previous values were too short to be implemented in PCDs.

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				14443-3:2011.		
US2	Pg 45	7.10.4	T	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 Maximum Frame Size Code = 'D' - 'F' should interpret it as Maximum Frame Size Code = 'C' (4096 bytes)."	Resolved By adding the note
JP13	7.10.4	NOTE below Table 36	ed	For consistency.	Replace "ISO/IEC 14443-4:2008/Amd 2" by "ISO/IEC 14443-4:2008/Amd.2".	Accepted
FR5	7.10.4	Second instruction	ED	Clarity	Replace "Add below table 36:" with "Add the following note below table 36:" Or delete this addition because the same note has already been added in 7.9.4.6.	Accepted

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[JP Annex-1] Inconsistency with Minimum TR0
ISO/IEC 14443-3:2011

Table 30 — Minimum TR0 coding

b8	b7	Minimum TR0 for a PCD to PICC bit rate of			
		<i>fc</i> / 128	<i>fc</i> / 64	<i>fc</i> / 32	<i>fc</i> / 16
0	0	64 / <i>fs</i>	64 / <i>fs</i>	64 / <i>fs</i>	64 / <i>fs</i>
0	1	48 / <i>fs</i>	32 / <i>fs</i>	16 / <i>fs</i>	16 / <i>fs</i>
1	0	16 / <i>fs</i>	8 / <i>fs</i>	4 / <i>fs</i>	4 / <i>fs</i>
1	1	RFU	RFU	RFU	RFU

FPDAM ISO/IEC14443-3/Amd.2(VHBR)

b8	b7	Minimum TR0 for a PCD to PICC bit rate of	
		<i>fc</i> / 128	> <i>fc</i> / 128
0	0	1024 / <i>fc</i>	1024 / <i>fc</i>
0	1	768 / <i>fc</i>	512 / <i>fc</i>
1	0	256 / <i>fc</i>	256 / <i>fc</i>
1	1	RFU	RFU

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