ISO/IEC JTC1/SC17/WG8 N 1850
ISO/IEC JTC1/SC17 N 4384

Disposition of comments on:
FCD ISO/IEC 14443-2:2010/AM3 — Identification cards — Contactless integrated circuit(s) cards — Proximity cards — Part 2: Radio frequency power and signal interface — AMENDMENT 3: Bit rates of fc/8, fc/4 and fc/2

Reference documents:

Ballot is in SC17 N 4220 = WG8 N 1824
Ballot Result is in SC17 N 4320 = WG8 N 1838

Project Editor:
Jean-Paul Caruana, France

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.

The two negative votes from Japan and the U.S. could be resolved. Belgium and the Netherlands, also having voted negatively, haven't provided yet, whether they have changed their vote into yes.

According to the advice from the SC17 Secretariat WG8 decided by WG8 Resolution 50.03 (contained in WG8 N 1847) to issue the new text of 14443-2/Amd.3, i.e. WG8 N 1849, for FDIS 14443-2:2010/FDAM3 balloting.

Template for comments

Date: 07-09-2011	Document: **ISO/IEC 14443-2FPDAM3**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Proposed Editors Disposition**
FR1	8.1.3		ED	The numbering for Bit representation and coding is not consistent with the one of Modulation (and the new 8.1.3 title refers to fc/8, fc/4 and fc/2 instead of fc/128, fc/64, fc/32 and fc/16)	Change to : 8.1.3 Bit representation and coding 8.1.3.1 Bit representation and coding for bit rates of fc/128, fc/64, fc/32 and fc/16 8.1.3.2 Bit representation and coding for bit rates of fc/8, fc/4 and fc/2	accepted
FR2	8.2.1		ED	The change of 8.2.1 is useless because it is now identical to 8.1.1 (2,5 and 5 Mbit/s were removed from this amendment)	Delete this change to keep the original statement "See 8.1.1."	accepted
FR3	8.2.5.2		ed	typo	Delete the first "at" in the instruction	Resolved by GE2
FR4	8.2.5.2		ED	Wrong reference	Refer to Table 8	Resolved by GE2
FR5	9.1.2	Last line	ed	consistency	Add "of" before fc/128	accepted
FR6	9.1.2	Table 8	ed	consistency	Replace "caption text" with "title" Same comment for Table 9	accepted
FR7	9.1.2	Figure 17	ed	Consistency with similar instructions	Replace "After Figure 17 add:" with "After Figure 17 add the following:"	accepted
FR8	9.2.1		ED	If 8.2.1 refers to 8.1.1 (because 2,5 and 5 Mbit/s were removed from this amendment), there is no reason for 9.2.1 to be changed	Delete this change to keep the original statement "See 8.1.1."	accepted
FR9	9.2.5		ed	Consistency of all intructions (e.g. 9.2.5 with 8.2.4)	Replace "1st" with "first" and "2nd" with "second" in the instruction	accepted

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 – 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.

Template for comments and secretariat observations

Date: Aug 27-2011	Document: **ISO/IEC JTC1 SC 17 N4220**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted
US	Page 17, 8.2.5.2	8.2.5.2	Tech nical	SC 17 N 4220 (b10.5-2011-00079) ISO/IEC 14443-2: 2010/FPDAM Amd 3 – ID Cards – Contactless IC Cards – Prox. Cards – Part 2 RF Power and Signal Interface – AMENDMENT 3 bit rates of fc/8, fc/4, anf fc/2 is premature. The US, therefore, supports the position that --- until a better understanding exists, a resolution of the following technical concern is reached through the furtherance of additional technical information; the FPDAM should not be balloted. "[*PROJECT EDITOR NOTE*]: The following proposed change requires additional technical information. *Page 17, 8.2.5.2* Add at the following sentence at the end of the definition for "start of communication": "For bit rates higher than *fc*/16 the training sequence 'D59BB49C5E51841E' may follow the inverted subcarrier, if supported by the PICC in accordance with ISO/IEC 14443-4:2008/Amd.2, Clause 9, Table A.5."	Do not ballot this FPDAM until a better understanding of the text and technology described on page 17, 8.2 .5 .2 is made known.	Resolve by DE2

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.

DE comments to: ISO/IEC 14443-2-DAmd3 as submitted in SC17n4220

Date: 2011-09-05	Document: **ISO/IEC 14443-2 DAmd 3**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted **Please enter your name here**
DE 1	Amendment page 1	Page 14, 8.1.3 Subclause title	ed	Existing subclause title should be changed to be valid for bit rates up to fc/16.	Replace: " Change title to "**Bit representation and coding for bit rates of *fc*/8, *fc*/4 and *fc*/2**" " By " Change title to "**Bit representation and coding for bit rates up to *fc*/16**"	Resolve by FR1
DE 2	Amendment page 3	Project Editor Note, Page 17, 8.2.5.2	te	The bit representation and coding is the same for all bit rates. There is no technical information available why an additional training sequence is required just for bit rates higher than fc/16.	Delete Project Editors note and related paragraphs: " [*PROJECT EDITOR NOTE*]: The…… …… Clause 9, Table A.5,"	Accepted
DE 3	Amendment page 5	Paragraph below Figure 18	te	Using a waveform tool according to proposed test methods in ISO/IEC 10373-6 PDAM4, an antenna quality factor of 8-10 results in maximum rise/fall times of 3/fc rather than 4/fc for a bit rate of fc/2.	Replace text between Figure 18 and Figure 19 by: " For a bit rate of *fc*/4 the PCD shall generate for any bit combination a modulation waveform with — a fall time t_f between 0/*fc* and $t_{f,\,max,\,PCD}$ = 4/*fc*, — and a rise time t_r — greater than both 0/*fc* and t_f − 2/*fc*, — and less than both t_f + 2/*fc* and and t_r,	Accepted

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)
MB[1]	**Clause No./ Subclause No./ Annex** (e.g. 3.1)	**Paragraph/ Figure/Table/ Note** (e.g. Table 1)	**Type of com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted **Please enter your name here**
					$_{max, PCD}$ = 4/*fc*. For a bit rate of *fc*/4 the PICC shall be able to receive for any bit combination a modulation waveform with a fall time t_f between 0/*fc* and $t_{f, max, PICC}$ = 4/*fc*, — and a rise time t_r : — greater than both 0/*fc* and t_f − 2/*fc*, — and less than both t_f + 2/*fc* and and $t_{r, max, PICC}$ = 4/*fc*. The timing parameters for PCD and PICC are illustrated in Figure 19. " Delete "and *fc*/2" in caption text of Figure 19 Add following paragraphs after Figure 19: "For a bit rate of *fc*/2 the PCD shall generate for any bit combination a modulation waveform with a fall time t_f less than $t_{f, max, PCD}$ = 3/*fc* and a rise time t_r less than $t_{r, max, PCD}$ = 3/*fc*. For a bit rate of *fc*/2 the PICC shall be able to receive for any bit combination a modulation waveform with a fall time t_f less than $t_{f, max, PICC}$ = 3/*fc* and a rise time t_r less than $t_{r, max, PICC}$ = 3/*fc*. "	

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.

DE comments to: ISO/IEC 14443-2-DAmd3 as submitted in SC17n4220

Date: 2011-09-05	Document: **ISO/IEC 14443-2 DAmd 3**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted **Please enter your name here**

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.

Template for comments and secretariat observations

Date: 2011-08-23	Document: JTC1/SC17N4220 ISO/IEC 14443-2(2010)/FPDAM 3

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 FCD ballot stage whether there are any known patents regarding this specification. 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 VHBR.	Resolved: the rules JTC1 require participants to the meeting to report to SC17 secretariat any known patent. The ISO database is then updated.
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 14443-2/Amd.3 to confirm its reproducibility and feasibility.	Prior to the next ballot stage, fix the test method for VHBR.	Resolved by fixing the technology of the test method at this meeting.
JP3	8.1.3	Title	ed	Editing error.	Replace "**Bit representation and coding for bit rates of *fc*/8, *fc*/4 and *fc*/2**" by "**Bit representation and coding for bit rates of *fc*/128, *fc*/64, *fc*/32 and *fc*/16**"	Resolved by FR1
JP4	7	Figure1	ed	JNB (Japan National Body) recognizes that “7 Signal interface” should be described not only for “Type-A/B (up to fc/16)” but also “VHBR”(fc/8, fc/4 and fc/2) . Therefore, the example PCD to PICC communication signals for VHBR should be illustrated.	- Insert the example PCD to PICC communication signals for VHBR after Figure 1 and Rename its caption to “Figure 1 — Example PCD to PICC communication signals for Type A and Type B interfaces (up to fc/16) and VHBR interfaces (fc/8, fc/4 and fc/2)”.	Postpone until figure will be upgrade
JP5	7	Figure2	ed	JNB recognizes that “7 Signal interface” should be described not only for “Type-A/B (up to fc/16)” but also “VHBR”(fc/8, fc/4 and fc/2) . Therefore, the example PICC to PCD communication signals for VHBR should be illustrated.	Insert the example PICC to PCD communication signals for VHBR after Figure 2 and rename its caption to “Figure 2 — Example PICC to PCD communication signals for Type A and Type B interfaces (up to fc/16) and VHBR interfaces (fc/8, fc/4 and fc/2)”.	Accepted, figure 2 will be replace.
JP6	8.1.1		ed	Significant figures in VHBR are inconsistent.	Replace (~1,695 Mbit/s) by (~1,70 Mbit/s).	withdraw

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.

Template for comments and secretariat observations

Date: 2011-08-23	Document: JTC1/SC17N4220 ISO/IEC 14443-2(2010)/FPDAM 3

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
JP7	8.2.1		ed	Significant figures in VHBR are inconsistent.	Replace (~1,695 Mbit/s) by (~1,70 Mbit/s).	Withdraw
JP8	8.2.3.2	1st paragraph	ed	Significant figures in VHBR are inconsistent.	Replace (~1,695 Mbit/s) by (~1,70 Mbit/s).	Withdraw
JP9	8.2.3.2	Table 8	ed	Significant figures in VHBR are inconsistent.	Replace 1,695 Mbit/s by 1,70 Mbit/s.	withdraw

JP10	8.2.5.2		te	JNB recognizes that “training sequence” has originated from the comment of NL1 and DE6 to increase robustness, according to Disposition of Comments on PDAM 14443-2/Amd.3 (ISO/IEC JTC 1/SC 17 N 4216).
				However,
				(1) The positioning of “training sequence” should be clarified. 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.
				(2) The word “training sequence” is not defined.
				(3) What is the origin of the value 'D59BB49C5E51841E'? Why does this specification apply to Type-A?
					For (1), solve the JNB’s question.
					For (2), insert the definition “training sequence”.
					For (3), show the technical meaning of using the value 'D59BB49C5E51841E'.
						Resolved by DE2

JP11	9.1.1	2nd paragraph	ed	Significant figures in VHBR are inconsistent.	Replace (~1,695 Mbit/s) by (~1,70 Mbit/s).	Withdraw
JP12	9.2.5		ed	According to the 2nd bullet of 2nd paragraph on ISO/IEC14443-2:2010(E) The PICC shall then generate a subcarrier with no phase transition for a synchronization time TR1. This establishes an initial subcarrier phase reference Ø0. TR1 shall be greater than 80/*fs* (~94,4 µs).	Add as follows on Page24, 9.2.5. Replace the1st and 2nd bullet of 2nd paragraph with the following:	Resolved by explanation and removal of time reference in bracket. For bit rate higher than fc/16,TR1 duration is depending on the bit rate but the TR1 definition remain the

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.

Template for comments and secretariat observations

Date: 2011-08-23	Document: JTC1/SC17N4220 ISO/IEC 14443-2(2010)/FPDAM 3

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
				It uses *fs*.	—"After any command ···greater than 1024/fc(~75.5 μ s)." —"The PICC shall then generate a subcarrier with no phase transition for a synchronization time TR1. This establishes an initial subcarrier phase reference Ø0. TR1 shall be greater than 1280/fc (~94,4 µs)."	same: 80/fs

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.

Template for comments and secretariat observations

Date: 10-8-2011	Document: **comments on N4220**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted
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: this comment cannot be supported because ASK method cannot reach 3fc/4 and fc. The separation as performed in ISPRA has been supported by WG8 members according to the resolution number 49.03

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.

Template for comments and secretariat observations

Date: 05-09-2011	Document: **N4220**

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 com-ment**[2]	**Comment (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations** on each comment submitted
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 explicit request of NL to keep them in the standard. 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.	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: this comment cannot be supported because ASK method cannot reach 3fc/4 and fc. The association of only one method for each bit rate as performed in ISPRA has been supported by WG8 members according to the resolution number 49.03.
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:The separation as performed in ISPRA has been supported by WG8 members according to the resolution number 49.03

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.