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AMENDMENT 6
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Identification cards — Contactless integrated circuit cards — Proximity cards —

Part 3: Initialization and anticollision

AMENDMENT 6: Bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* from PCD to PICC

Cartes d'identification — Cartes à circuit(s) intégré(s) sans contact — Cartes de proximité —

Partie 3: Initialisation et anticollision

*AMENDEMENT 6: Débits binaires de 3*fc*/4,* fc*, 3*fc*/2 et 2*fc *de PCD à PICC*

Reference number
ISO/IEC 14443-3:2011/Amd.6:2014(E)

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Foreword

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Amendment 6 to ISO/IEC 14443-3:2011 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

Identification cards — Contactless integrated circuit cards — Proximity cards —

Part 3: Initialization and anticollision

AMENDMENT 6: Bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* from PCD to PICC

Page 5, 6.1 (amended by ISO/IEC 14443-3:2011/Amd.2:2012)

Add the following after Table 1:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.1."

Page 7, 6.2.1.1 (amended by ISO/IEC 14443-3:2011/Amd.2:2012)

Add the following after second paragraph:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.1.1."

Page 9, 6.2.1.1 (amended by ISO/IEC 14443-3:2011/Amd.2:2012)

Complete the enumeration of bit rates in Table 2 by adding bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* in last row.

Page 11, 6.2.3.2.2

Add the following subclause and sentence after 6.2.3.2.2:

"**6.2.3.2.3 PCD standard frame for bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc***

See E.2.2.1."

Page 23, 7.1.1

Add the following below Figure 13:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.2.3."

Page 24, 7.1.3

Add the following paragraph below Figure 14:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.2.2."

Page 26, 7.1.4

Add the following paragraph before 7.1.5:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.2.2."

Page 27, 7.1.5

Add the following paragraph at the end of the subclause:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.2.2."

Page 28, 7.1.7

Add the following paragraph at the end of the subclause:

"For bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* see E.2.1.2.2."

After Annex D of ISO/IEC 14443-3:2011/Amd.2:2012

Add the following Annex E:

"

Annex E
(normative)

Bit rates of 3*fc*/4, *fc*, 3*fc*/2 and 2*fc* from PCD to PICC

E.1 etu

The value of the etu for each bit rate is defined in Table E.1.

Table E.1 — etu

Bit rates	etu
3*fc*/4 (~ 10,17 Mbit/s)	4/*fc* (~ 0,29 µs)
fc (~ 13,56 Mbit/s)	4/*fc* (~ 0,29 µs)
3*fc*/2 (~ 20,34 Mbit/s)	2/*fc* (~ 0,15 µs)
2*fc* (~ 27,12 Mbit/s)	2/*fc* (~ 0,15 µs)

E.2 Frame format and timing

The frame format and timing requirements are defined in 6.2 for Type A and in 7.1 for Type B.

E.2.1 Frame delay time

The frame delay time is defined as the time between two frames transmitted in opposite directions.

E.2.1.1 Frame timing PCD to PICC

This is the time between the end of the last phase modulation transmitted by the PCD and the first modulation edge transmitted by the PICC.

E.2.1.1.1 Frame delay time PCD to PICC for Type A

The FDT shall be at least 1116/*fc*.

E.2.1.1.2 Timing before PICC SOF for Type B

The timing before PICC SOF as specified in 7.1.6 *(amended by ISO/IEC 14443-3:2011/Amd.2:2012)* shall be used.

E.2.1.2 Frame timing PICC to PCD

E.2.1.2.1 Frame delay time PICC to PCD for Type A

This is the time between the last modulation transmitted by the PICC and the beginning of the first phase modulation transmitted by the PCD.

The Frame delay time PICC to PCD for Type A shall be at least 1172/*fc*.

E.2.1.2.2 Timing before PCD start of communication for Type B

This is the time between the end of the last character transmitted by the PICC and the beginning of the first phase modulation transmitted by the PCD.

The timing before PCD start of communication for Type B shall comply with the requirements defined in 7.1.7.

E.2.2 Frame format

E.2.2.1 Frame format for PICC Type A

The standard frame format as defined in ISO/IEC 14443-3:2011/Amd.2:2012, 6.2.3.2.1 shall be used.

Start and end of communication are specified in ISO/IEC 14443-2:2010/Amd.5.

E.2.2.2 Frame format for PICC Type B

The frame format as specified in 7.1.3 shall be used whereas the frame shall be delimited by start and end of communication as specified in ISO/IEC 14443-2:2010/Amd.5.

E.2.2.3 Character transmission format for PICC Type B

The character transmission format as specified in 7.1.1 shall be used whereas the start and stop bits shall be omitted and no character separation shall be applied.

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