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**Identification cards — Contactless  
integrated circuit cards — Proximity  
cards**

**Part 4:  
Transmission protocol**

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

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

*Partie 4: Protocole de transmission*

*AMENDEMENT 3: Débits binaires de  $3fc/4$ ,  $fc$ ,  $3fc/2$  et  $2fc$  de PCD vers  
PICC*



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Amendment 3 to ISO/IEC 14443-4:2008 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

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## Identification cards — Contactless integrated circuit cards — Proximity cards

### Part 4: Transmission protocol

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

##### *Clause 9*

Add the following below Figure 24:

"For bit rates of  $3fc/4$ ,  $fc$ ,  $3fc/2$  and  $2fc$  see Annex D."

##### *After Annex C*

Add the following Annex D:

"

## Annex D (normative)

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

#### D.1 Function tags identifier definition

The information field shall contain tags and values as defined in Table D.1.

**Table D.1 — Function tags identifier definition**

| Tag<br>(Hex) | Description               | Length<br>(Hex) | Value        |                 |                                                                                                                                                      |
|--------------|---------------------------|-----------------|--------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 'A1'         | Bit rates Request         | '0'             | —            |                 |                                                                                                                                                      |
| 'A2'         | Bit rates Indication      | L               | Tag<br>(Hex) | Length<br>(Hex) | Value                                                                                                                                                |
|              |                           |                 | '80'         | '02'            | supported bit rates from PCD to PICC<br>1 <sup>st</sup> byte is specified in Figure 23<br>2 <sup>nd</sup> byte is specified in Figure D.1            |
|              |                           |                 | '81'         | '02'            | supported bit rates from PICC to PCD<br>1 <sup>st</sup> byte is specified in Figure 23<br>2 <sup>nd</sup> byte is RFU                                |
|              |                           |                 | '82'         | '01'            | supported framing options PICC to PCD (see Figure 24) <sup>a</sup>                                                                                   |
| 'A3'         | Bit rates Activation      | L               | Tag<br>(Hex) | Length<br>(Hex) | Value                                                                                                                                                |
|              |                           |                 | '83'         | '02'            | selected bit rate from PCD to PICC <sup>b</sup><br>1 <sup>st</sup> byte is specified in Figure 23<br>2 <sup>nd</sup> byte is specified in Figure D.1 |
|              |                           |                 | '84'         | '02'            | selected bit rate from PICC to PCD <sup>b</sup><br>1 <sup>st</sup> byte is specified in Figure 23<br>2 <sup>nd</sup> byte is RFU                     |
|              |                           |                 | '85'         | '01'            | selected framing options PICC to PCD (see Figure 24) <sup>a,c</sup>                                                                                  |
| 'A4'         | Bit rates Acknowledgement | '0'             | —            |                 |                                                                                                                                                      |

<sup>a</sup> shall be omitted for Type A PICCs

<sup>b</sup> The PCD shall set only one bit. The PCD shall not activate simultaneously a bit rate higher than  $fc/16$  for PCD to PICC communication and a bit rate of  $fc/128$  for PICC to PCD communication in Type A.

<sup>c</sup> The PCD shall not set both b1 (start bit and stop bit suppression) and b2 (SOF and EOF suppression).

When the PCD sets b1 (start bit and stop bit suppression):

- The PICC shall use a SOF low time of 10 etu and a SOF high time of 2 etu.
- The PICC shall use an EOF low time of 10 etu.
- The PICC shall apply no character separation.