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AMENDMENT 1  
2021-05

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## Cards and security devices for personal identification — Contactless proximity objects —

### Part 4: Transmission protocol

**iTEH Standards**  
AMENDMENT 1: Dynamic power level  
management  
(<https://standards.iteh.ai>)

*Cartes et dispositifs de sécurité pour l'identification personnelle —  
Objets sans contact de proximité —*

*Partie 4: Protocole de transmission*

*ISO/IEC 14443-4:2018/Amd.1:2021*

<https://standards.iteh.ai/catalog/standards/iso/d76ca44a-fd18-451c-b2cd-c8d49c94121b/iso-iec-14443-4-2018-amd-1-2021>



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**iTeh Standards**  
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[ISO/IEC 14443-4:2018/Amd 1:2021](https://standards.iteh.ai/catalog/standards/iso/d76ca44a-fd18-451c-b2cd-c8d49c94121b/iso-iec-14443-4-2018-amd-1-2021)

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and security devices for personal identification*.

A list of all parts in the ISO/IEC 14443 series can be found on the ISO website.

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# Cards and security devices for personal identification — Contactless proximity objects —

## Part 4: Transmission protocol

### AMENDMENT 1: Dynamic power level management

*Page 3, Clause 4*

Add the following symbols:

" $H_{LP}$ " minimum requested field strength"

" $H_{step, max}$ " PCD maximum field strength step increase or step decrease"

" $PLI_{CID}$ " Power Level Indication in CID field"

" $t_{PL}$ " guard time for PCD power level change"

(IEH Standards  
<https://standards.iteh.ai>)

*Page 15, 7.1*

### Document Preview

Replace the third dash of the 2<sup>nd</sup> paragraph (i.e. "power indication; and") with "power level indication (optional); and".

ISO/IEC 14443-4:2018/Amd 1:2021

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*Page 20, 7.4*

Replace "1 byte long INF field that consists of two parts (see Figure 21)" at the end of the 1<sup>st</sup> paragraph with "1 byte long INF field that consists of three parts (see Figure 21)".

Replace the first dash after the 1<sup>st</sup> paragraph with:

- If b8 is set to (1)b, it indicates that the PICC requests the maximum available field strength to process the current and next commands until indicated otherwise by  $PLI_{CID}$ . In the operating volume of each supported class, the PCD shall provide at least the corresponding minimum field strength  $H_{min}$  specified in ISO/IEC 14443-2 and should provide more if available, while respecting all magnetic field strength requirements specified in 7.5. Interpretation of b8 by the PCD is optional.
- b7 codes  $t_{PL}$  value.  $t_{PL} = 5$  ms if b7 is set to (1)b, otherwise  $t_{PL}$  equals the default value specified in ISO/IEC 14443-3:2018/Amd 1:2021, 6.5.2.3.

*Page 20, 7.4, Figure 21*

Replace Figure 21 with the following figure:

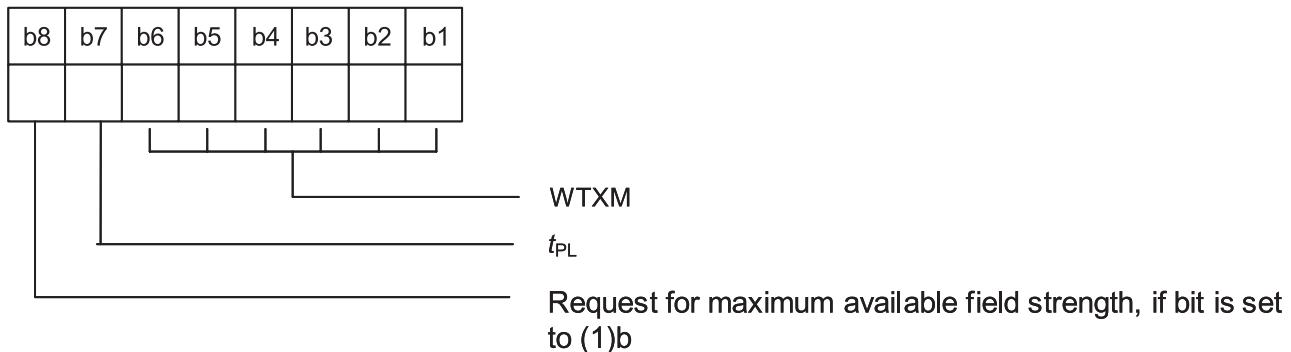


Figure 21 — Coding of INF field of an S(WTX) request

Page 21, 7.5

Replace the subclause with the following:

"

## 7.5 Power level indication (optional)

In the PROTOCOL state, the PICC may use  $PLI_{CID}$  to give power level indications to the PCD and  $PLI_{CID}$  shall be coded as specified in Table 4 using two bits embedded in the CID field (when present) sent by the PICC (see 7.2.2.2). See Annex H for examples of  $PLI_{CID}$  usage.

A PICC that codes:

- $PLI_{CID} = (00)b$  does not provide any received power level indication;
- $PLI_{CID} = (01)b$  indicates the received field strength is less than  $(H_{LP} + H_{step, max})$  (see ISO/IEC 14443-2:2020/Amd 1); when receiving  $PLI_{CID} = (01)b$ , the PCD should not decrease its field strength;
- $PLI_{CID} = (10)b$  indicates the received field strength is at least  $(H_{LP} + H_{step, max})$ ; and a one-step decrease may increase the PICC response time; when receiving  $PLI_{CID} = (10)b$ , the PCD may decrease its field strength by one step only;
- $PLI_{CID} = (11)b$  indicates the received field strength is at least  $(H_{LP} + H_{step, max})$ ; and a one-step decrease is not expected to increase the PICC response time; when receiving  $PLI_{CID} = (11)b$ , the PCD may decrease its field strength by one step only.

The PCD may increase its field strength in one or several steps before any SOF or start of communication.

Table 4 — Coding of  $PLI_{CID}$ 

$PLI_{CID}$	Power level indication
(00)b	No indication for field strength
(01)b	Field strength is less than $(H_{LP} + H_{step, max})$
(10)b	Field strength is at least $(H_{LP} + H_{step, max})$ One-step decrease may increase the PICC response time
(11)b	Field strength is at least $(H_{LP} + H_{step, max})$ One-step decrease is not expected to increase the PICC response time

After receiving the power level indication from the PICC, the PCD may change its magnetic field strength in accordance with the power level indication before sending the next block.