

Fourth edition
2020-07

AMENDMENT 1
2021-05

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

Part 2:
**Radio frequency power and signal
interface**

AMENDMENT 1: Dynamic power level
management

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

Partie 2: Interface radiofréquence et des signaux de communication

AMENDEMENT 1: Gestion dynamique de niveau de puissance



Reference number
ISO/IEC 14443-2:2020/Amd.1:2021(E)

© ISO/IEC 2021

TECNORM.COM : Click to view the full PDF of ISO/IEC 14443-2:2020/Amd 1:2021



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier; Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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 and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

IECNORM.COM : Click to view the full PDF of ISO/IEC 14443-2:2020/Amd 1:2021

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

Part 2: Radio frequency power and signal interface

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"

Page 6, 6.3

Replace the first paragraph with the following text:

"Within the manufacturer specified operating volumes (see 3.6),

- the PCD shall generate a field strength of at least H_{min} and not exceeding H_{max} under unmodulated conditions, see Table 1;
- the PCD may generate a field strength lower than H_{min} only in case the PICC allows a decrease in the PCD field strength as specified in other parts of ISO/IEC 14443 and only for the processing of that PICC.

The PCD field strength step increase and step decrease shall be less than $H_{step, max} = 3$ dB (a factor of $\sim 1,4$) and may be achieved by any wave shape, e.g., by several increments.

WARNING — The PCD design shall take into account the field strength variation caused by the two different loading effects used in the associated test."

Add the following paragraphs just before Table 2:

"Additionally, if the PICC allows a decrease in the PCD field strength down to a value less than H_{min} , then the PICC shall be able to operate as intended continuously between that value and H_{min} defined for its class, see Table 2.

The minimum requested field strength H_{LP} is $H_{step, max}$ below the lowest field strength at which the PICC indicates $PLI_{ATQ} = (11)b$ or $PLI_{CID} = (10)b$ or $(11)b$ (see ISO/IEC 14443-3:2018/Amd 1 and ISO/IEC 14443-4:2018/Amd 1)."

Page 24, 8.2.2.2, Table 22

Replace " $22/H^{0.5}$ " with " $\text{Min}(18 ; 22/H^{0.5})$ " for $V_{LMA, \text{min}, \text{PICC}}$ requirement (first column) for "Class 1" PICC (first row).

Page 34, 9.1.2

Add the following paragraph just before Figure 22:

"Additionally, if the PICC allows a decrease in the PCD field strength down to a value less than H_{min} , then the PICC shall be able to receive for any bit combination a modulation waveform with a modulation index, m , greater than 8 % and less than 15 % for bit rates of $f_c/128$, $f_c/64$, $f_c/32$ and $f_c/16$ between that value and H_{min} defined for its class, see Table 2."

Page 43, 10.2

Add the following paragraph just after NOTE 1 (i.e. before the paragraph starting with "During this low EMD time"):

"Additionally, if the PICC allows a decrease in the PCD field strength down to a value less than H_{min} , then for all PICC classes, the EMD level before PICC data transmission shall be less than $V_{E, \text{PICC}}$ defined for H_{min} that is $2/3 + 3/H_{\text{min}}^2$ [mV (peak)]."

IECNORM.COM : Click to view the full PDF of ISO/IEC 14443-2:2020/Amd 1:2021