INTERNATIONAL STANDARD

**ISO/IEC 10373-6**

Third edition
2016-07-15

**AMENDMENT 3**
2018-04

# Identification cards — Test methods —

## Part 6: Proximity cards

## AMENDMENT 3: PICC loading effect

*Cartes d'identification — Méthodes d'essai —*

*Partie 6: Cartes de proximité*

*AMENDEMENT 3: Effet de charge PICC*



Reference number
ISO/IEC 10373-6:2016/Amd.3:2018(E)



ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The document was prepared by ISO/IEC JTC 1, *Information technology*, SC 17, *Cards and security devices for personal identification*.

A list of all the parts in the ISO 10373 series can be found on the ISO website.

# Identification cards — Test methods —

## Part 6:
## Proximity cards

## AMENDMENT 3: PICC loading effect

*Page 18, 7.1*

Replace Table 3 and NOTE with the following Table 3 and sentence:

**Table 3 — Class parameters**

| Class | Reference PICC | $V_{load}$ | $R2_{min}$ | $R2_{max}$ | Test PCD assembly |
|---|---|---|---|---|---|
| 1 | 1 | 4,5 V | 647 Ω | 791 Ω | Test PCD assembly 1 |
| 2 | 2 | 4,5 V | 1 030 Ω | 1 260 Ω | Test PCD assembly 1 |
| 3 | 3 | 4,5 V | 1 080 Ω | 1 320 Ω | Test PCD assembly 1 |
| 4 | 4 | 4,5 V | 990 Ω | 1 210 Ω | Test PCD assembly 2 |
| 5 | 5 | 4,5 V | 960 Ω | 1 170 Ω | Test PCD assembly 2 |
| 6 | 6 | 4,5 V | 700 Ω | 900 Ω | Test PCD assembly 2 |

The PCD should be tested with a $V_{load}$ of 6 V for Reference PICC 1 to ensure interoperability with PICCs compliant with the $V_{load}$ requirement of ISO/IEC 10373-6:2016.

*Page 19, 7.1.1.2.2*

After step c) add:

d) For Reference PICC 1 repeat:

1) step b) with a DC voltage $V_{load}$ of 6 V measured at connector CON3 instead of $V_{load}$ as defined in Table 3, and

2) step c), where the DC voltage at CON3 shall exceed 5,3 V [corresponding to $H_{min}$ – 0,2 A/m(rms)], instead of $V_{load}$ as defined in Table 3.

*Page 19, 7.1.1.3*

Replace the whole paragraph with:

"The test report shall confirm the operating volume in which the DC voltage measured at CON3 for R2 or variable load resistor adjusted to $H_{min}$ and $H_{max}$ field strength fulfils the requirements defined in step d) of 7.1.1.2.1 and in step c) of 7.1.1.2.2."

*Page 28, 7.2.5.2*

After step f) add:

If PICC "Class 1" parameters were used and if the field strength measured in step f) was not greater than $H_{min}$, then the following alternative procedure may be used to measure the PICC loading effect:

— repeat steps b) to f) using Reference PICC 1 configured for a $V_{load}$ of 6 V instead of the voltage defined in Table 3;

NOTE 1 The warning about R2 value is not applicable in this case.

— repeat the PICC transmission test defined in 7.2.1 with a field strength of $H_{min}$ – 0,2 A/m(rms) instead of $H_{min}$, as defined in ISO/IEC 14443-2:2016, Table 2, using the $V_{LMA,\ PICC}$ limit defined for $H_{min}$, as defined in ISO/IEC 14443-2:2016, Table 8;

— repeat the PICC EMD level and low EMD time test defined in 7.2.2 with a field strength of $H_{min}$ – 0,2 A/m(rms) instead of $H_{min}$, as defined in ISO/IEC 14443-2:2016, Table 2, using the $V_{E,\ PICC}$ limit defined for $H_{min}$, as defined in ISO/IEC 14443-2:2016, 10.2;

— repeat the PICC reception test defined in 7.2.3 with a field strength of $H_{min}$ – 0,2 A/m(rms) instead of $H_{min}$, as defined in ISO/IEC 14443-2:2016, Table 2, using, for Type B PICC, the modulation index, $m$, defined for $H_{min}$, as defined in ISO/IEC 14443-2:2016, 9.1.2.1.

NOTE 2 This alternative procedure checks that a slightly higher PICC loading effect is compensated by a slightly lower PICC minimum operating field strength.

*Page 29, 7.2.5.3*

Replace the whole subclause with:

If the alternative procedure has not been used, the test result is only PASS if the field strength measured in step f) is greater than $H_{min}$, otherwise the test result is FAIL.

If the alternative procedure has been used, the test result is only PASS if the field strength measured in step f) is greater than $H_{min}$ (using Reference PICC 1 configured for a DC voltage $V_{load}$ of 6 V) and if the PICC transmission test defined in 7.2.1, the PICC EMD level and low EMD time test defined in 7.2.2 and the PICC reception test defined in 7.2.3 are PASS with a field strength of $H_{min}$ – 0,2 A/m(rms) instead of $H_{min}$, otherwise the test result is FAIL.

The test report shall give the value of the measured field strength and the $V_{load}$ value used.