

---

---

**Cards and security devices for  
personal identification — Test  
methods —**

Part 6:  
**Contactless proximity objects**

**AMENDMENT 2: Enhancements for  
harmonization**

*Cartes et dispositifs de sécurité pour l'identification personnelle —  
Méthodes d'essai —*

*Partie 6: Objets sans contact de proximité*

*AMENDEMENT 2: Améliorations pour harmonisation*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2020

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://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](http://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](http://www.iso.org/patents)) or the IEC list of patent declarations received (see <http://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](http://www.iso.org/iso/foreword.html).

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 10373 series can be found on the ISO website.

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](http://www.iso.org/members.html).

STANDARDSISO.COM : Click to view the full PDF of ISO/IEC 10373-6:2020/Amd 2:2020

# Cards and security devices for personal identification — Test methods —

## Part 6: Contactless proximity objects

### AMENDMENT 2: Enhancements for harmonization

4.7, Table 3

Add the following row at the end of the table:

"

| Parameter                             | Description                     | Unit |
|---------------------------------------|---------------------------------|------|
| Type A collision resolution supported | Collision resolution for Type A |      |

"

H.2.3.4, Table H.8

Replace the table with the following:

"

| Explanation                                                                                        | Test result |
|----------------------------------------------------------------------------------------------------|-------------|
| Only when the PCD:<br>— starts the bit frame anticollision loop or<br>— resets the operating field | PASS        |
| Any other case                                                                                     | FAIL        |

"

H.2.4.1

Add the following sentence at the end of the paragraph:

"Procedure 4 defined in H.2.4.3.4 is only applicable to PCDs supporting Type A collision resolution; and Procedure 5 defined in H.2.4.3.5 is only applicable to PCDs not supporting Type A collision resolution (see Table 3)."

## H.2.4.3.5

Add the following paragraph at the beginning of the subclause:

"This procedure is only applicable to PCDs supporting Type A collision resolution (see Table 3)."

## H.2.4.3.6

Add the following new subclause after H.2.4.3.5:

"

**H.2.4.3.6 Procedure 5 (Detection of full bitwise anticollision loop for PICC)**

This procedure is only applicable to PCDs not supporting Type A collision resolution (see Table 3).

Use the following sequence:

- a) The UT performs the activation procedure according to H.1.8.1.
- b) The LT waits until the PCD sends a valid REQA/WUPA command frame
- c) The LT answers with ATQA indicating bit frame anticollision and UID size: single (bits b8 and b7 equal (00)b).
- d) The PCD shall send ANTICOLLISION command: '93 20'.
- e) The LT answers by a stream of 40 bits by emulating a collision on every bit, including parity bits.
- f) The PCD shall reset the operating field.

Table H.13 gives part of the procedure as a scenario.

**Table H.13 — Scenario H.5: Detection of full bitwise anticollision loop for PICC (Procedure 5)**

| Test          | PCD                             |        | LT                           |
|---------------|---------------------------------|--------|------------------------------|
| REQA/WUPA     | REQA/WUPA                       | →<br>← | ATQA (single size UID)       |
| ANTICOLLISION | ANTICOLLISION command ('93 20') | →<br>← | 40 bits full collision frame |
| RESET         | Reset of the operating field    | →      |                              |

"

## H.2.4.4, Table H.13

Replace the table with the following:

"

| Explanation                                                                      | Test result |
|----------------------------------------------------------------------------------|-------------|
| Only when the PCD's behavior matches each applicable procedure expected scenario | PASS        |
| Any other case                                                                   | FAIL        |

"

*H.2.5.3.2*

Delete the subclause "H.2.5.3.2 Procedure 1" and renumber the subsequent subclauses.

*H.2.10.3*

Replace step g) with the following:

"g) The PCD either shall send  $R(NAK)_0$  or shall send an S(DESELECT) request or shall reset the operating field."

*H.2.10.3, Table H.24*

Replace the last row with the following:

"

| PCD                                                                                              |   | LT |
|--------------------------------------------------------------------------------------------------|---|----|
| $R(NAK)_0$ ('BA' CID CRC or 'B2' CRC)<br>or<br>S(DESELECT)<br>or<br>reset of the operating field | → |    |

"

*H.3.3.3.2*

Replace step l) with the following:

"l) The PCD either shall send an S(DESELECT) request without NAD and CID or shall reset the operating field."

*H.3.3.3.2, Table 28*

Replace the last row with the following:

"

| PCD                                                                           |   | LT   |
|-------------------------------------------------------------------------------|---|------|
| Optional $R(NAK)_0$ without NAD and CID                                       | → |      |
|                                                                               | ← | Mute |
| S(DESELECT) request without NAD and CID<br>or<br>reset of the operating field | → |      |

"

## H.3.3.3.3

Replace step k) at the end with the following:

"k) The PCD either shall send an S(DESELECT) request with CID value equals to '0X' and without NAD or shall reset the operating field."

## H.3.3.3.3, Table H.29

Replace the last row with the following:

"

| PCD                                                                                                  |   | LT   |
|------------------------------------------------------------------------------------------------------|---|------|
| Optional R(NAK) <sub>0</sub> with CID value equals '0X' and without NAD                              | → |      |
|                                                                                                      | ← | Mute |
| S(DESELECT) request with CID value equals '0X' and without NAD<br>or<br>reset of the operating field | → |      |

"

## H.4.4.3.3

Replace step f) with the following:

"f) The PCD either shall send a R(NAK)<sub>0</sub> or shall send an S(DESELECT) request or shall reset the operating field."

## H.4.4.3.3, Table H.42

Replace the last row with the following:

"

| PCD                                                                                                       |   | LT |
|-----------------------------------------------------------------------------------------------------------|---|----|
| R(NAK) <sub>0</sub> ('B4' CID CRC or 'B2' CRC)<br>or<br>S(DESELECT)<br>or<br>reset of the operating field | → |    |

"

## H.4.4.3.4, Table H.43

Replace the last row with the following:

"

| PCD                                                                                                       |   | LT |
|-----------------------------------------------------------------------------------------------------------|---|----|
| R(NAK) <sub>0</sub> ('BA' CID CRC or 'B2' CRC)<br>or<br>S(DESELECT)<br>or<br>reset of the operating field | → |    |

"

## H.4.4.3.5

Replace step d) with the following:

"d) The PCD either shall send an S(DESELECT) request or shall reset the operating field."

## H.4.4.3.5, Table H.44

Replace the last row with the following:

"

| PCD                                                       |   | LT |
|-----------------------------------------------------------|---|----|
| S(DESELECT) request<br>or<br>reset of the operating field | → |    |

"

## H.4.4.3.7

Replace step f) with the following:

"f) Record all responses from the PCD. The PCD either shall send an R(NAK)<sub>0</sub> or shall send an S(DESELECT) request or shall reset the operating field."

## H.4.4.3.7, Table H.46

Replace the last row with the following:

"

| PCD                                                                           |   | LT |
|-------------------------------------------------------------------------------|---|----|
| $R(NAK)_0$<br>or<br>S(DESELECT) request<br>or<br>reset of the operating field | → |    |

"

## H.4.4.3.13

Delete the subclause "H.4.4.3.13 Procedure 12 (ISO/IEC 14443-4:2018, 7.5.5.2 rule 8)" and renumber the subsequent subclauses.

## I.3.1.1

Delete NOTE.

Replace steps h), i) and j) with the following:

"

- h) The PCD either shall send an S(DESELECT) request using the bit rate selected or shall reset the operating field.
- i) If the PCD sent an S(DESELECT) request in step h) then the PCD-test-apparatus sends a valid S(DESELECT) response using the bit rate selected. Otherwise the PCD-test-apparatus checks that the PCD resets the operating field.
- j) If the PCD sent an S(DESELECT) request in step h), the PCD shall send a valid WUPA command frame using the bit rate  $f_c/128$ . Otherwise the PCD shall send either a valid REQA or a valid WUPA command frame using the bit rate  $f_c/128$ .

"

## I.3.1.1, Table I.2

Replace the last two rows with the following:

"

| PCD                                                                                  |            | PCD-test-apparatus                                                               |
|--------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------|
| S(DESELECT) request<br>or<br>reset of the operating field                            | →<br><br>← | If S(DESELECT) request then<br>S(DESELECT) response<br>(using selected bit rate) |
| If S(DESELECT) request then<br>WUPA<br>else WUPA/REQA<br>(using bit rate $f_c/128$ ) | →<br><br>← | ATQA<br>(using bit rate $f_c/128$ )                                              |

"

## I.3.2.1

Delete NOTE.

Replace steps g), h) and i) with the following:

"

- g) The PCD either shall send an S(DESELECT) request using the bit rate selected or shall reset the operating field.
- h) If the PCD sent an S(DESELECT) request in step g) then the PCD-test-apparatus sends a valid S(DESELECT) response using the bit rate selected. Otherwise the PCD-test-apparatus checks that the PCD resets the operating field.
- i) If the PCD sent an S(DESELECT) request in step g), the PCD shall send a valid WUPB command frame using the bit rate  $f_c/128$ . Otherwise the PCD shall send either a valid REQB or a valid WUPB command frame using the bit rate  $f_c/128$ .

"

## I.3.2.1, Table I.4

Replace the last two rows with the following:

"

| PCD                                                                                  |            | PCD-test-apparatus                                                               |
|--------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------|
| S(DESELECT) request<br>or<br>reset of the operating field                            | →<br><br>← | If S(DESELECT) request then<br>S(DESELECT) response<br>(using selected bit rate) |
| If S(DESELECT) request then<br>WUPB<br>else WUPB/REQB<br>(using bit rate $f_c/128$ ) | →<br><br>← | ATQB<br>(using bit rate $f_c/128$ )                                              |

"

## I.3.3.1

Delete NOTE 3.

Replace steps h), i) and j) with the following:

"

- h) The PCD either shall send an S(DESELECT) request using the bit rate selected or shall reset the operating field.
- i) If the PCD sent an S(DESELECT) request in step h) then the PCD-test-apparatus sends a valid S(DESELECT) response using the bit rate selected. Otherwise the PCD-test-apparatus checks that the PCD resets the operating field.
- j) If the PCD sent an S(DESELECT) request in step h), the PCD shall send a valid WUPA for Type A or a valid WUPB for Type B command frame using the bit rate  $f_c/128$ . Otherwise the PCD shall send either a valid REQA or a valid WUPA for Type A or a valid REQB or a valid WUPB for Type B command frame using the bit rate  $f_c/128$ .

"