

Fifth edition  
2018-08

---

---

## Identification cards — Recording technique —

### Part 2: Magnetic stripe: Low coercivity

*Cartes d'identification — Technique d'enregistrement —  
Partie 2: Bandeau magnétique: Faible coercivité*



Reference number  
ISO/IEC 7811-2:2018(E)

© ISO/IEC 2018



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2018

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  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO/IEC 7811-2:2018". [Click here to purchase the full version from the ANSI store.](#)

## Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Conformance</b> .....	<b>3</b>
<b>5 Physical characteristics of the identification card</b> .....	<b>3</b>
5.1 General.....	3
5.2 Magnetic stripe area warpage.....	3
5.3 Surface distortions.....	3
<b>6 Physical characteristics of the magnetic stripe</b> .....	<b>4</b>
6.1 Height and surface profile of the magnetic stripe area.....	4
6.1.1 Surface profile of the magnetic stripe area.....	5
6.1.2 Height of the magnetic stripe area.....	6
6.2 Surface roughness.....	6
6.3 Adhesion of stripe to card.....	6
6.4 Wear of magnetic stripe from read/write head.....	7
6.5 Resistance to chemicals.....	7
<b>7 Performance characteristics for the magnetic material</b> .....	<b>7</b>
7.1 General.....	7
7.2 Testing and operating environment.....	7
7.3 Signal amplitude requirements for magnetic media.....	7
<b>8 Encoding technique</b> .....	<b>8</b>
<b>9 Encoding specification, general</b> .....	<b>9</b>
9.1 Angle of recording.....	9
9.2 Nominal bit density.....	10
9.3 Signal amplitude requirements for tracks 1, 2 and 3.....	10
9.4 Bit configuration.....	11
9.5 Direction of recording.....	11
9.6 Leading and trailing zeroes.....	11
<b>10 Encoding specifications</b> .....	<b>11</b>
10.1 Alphanumeric track, Track 1.....	11
10.1.1 Average bit density.....	11
10.1.2 Flux transition spacing variation.....	12
10.1.3 Coded character set.....	13
10.1.4 Maximum number of characters for ID-1 type card.....	14
10.2 Numeric track, Track 2.....	15
10.2.1 Average bit density.....	15
10.2.2 Flux transition spacing variation.....	15
10.2.3 Coded character set.....	15
10.2.4 Maximum number of characters for ID-1 type card.....	16
10.3 Numeric track, Track 3.....	16
10.3.1 Average bit density.....	16
10.3.2 Flux transition spacing variation.....	16
10.3.3 Coded character set.....	16
10.3.4 Maximum number of characters for ID-1 type card.....	16
<b>11 Error detection</b> .....	<b>16</b>
11.1 General.....	16
11.2 Parity.....	17
11.3 Longitudinal redundancy check (LRC).....	17
<b>12 Location of encoded tracks</b> .....	<b>17</b>

This is a preview of "ISO/IEC 7811-2:2018". [Click here to purchase the full version from the ANSI store.](#)

<b>Annex A (informative) Magnetic stripe read compatibility — ISO/IEC 7811-2, ISO/IEC 7811-6 .....</b>	<b>18</b>
<b>Annex B (informative) Magnetic stripe abrasivity .....</b>	<b>19</b>

This is a preview of "ISO/IEC 7811-2:2018". Click here to purchase the full version from the ANSI store.

## 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](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)).

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

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

This fifth edition cancels and replaces the fourth edition (ISO/IEC 7811-2:2014), which has been technically revised.

Major changes from the previous edition are as follows:

- wherever possible, the same definitions, criteria and test methods are used in ISO/IEC 7811-2 and ISO/IEC 7811-6;
- the primary standard cards held by Q-Card are used to calibrate the manufacture of secondary reference cards. Other primary standard cards held by PTB and Card Testing International (CTI) are used as backup to replace cards held by Q-Card as they wear out;
- the supplier of secondary reference cards has changed from PTB to Q-Card;
- during revision, some figure and table numbers may have changed and might not be the same between the two standards.

Notes in this document are only used for giving additional information intended to assist in the understanding or use of the document. They do not contain provisions or requirements to which it is necessary to conform in order to claim compliance with this document.

A list of all the parts in the ISO/IEC 7811 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).