

Australian Standard™

**Identification cards—Contactless
integrated circuit(s) cards—Vicinity
cards**

Part 2: Air interface and initialization

This Australian Standard was prepared by Committee IT-012, Information Systems, Security and Identification Technology. It was approved on behalf of the Council of Standards Australia on 4 March 2003 and published on 31 March 2003.

The following are represented on Committee IT-012:

Attorney General's Department
Australian Association of Permanent Building Societies
Australian Bankers Association
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Certification Forum of Australia
Department of Defence (Australia)
Department of Social Welfare New Zealand
Government Communications Security Bureau, New Zealand
Internet Industry Association
NSW Police Service
New Zealand Defence Force
Reserve Bank of Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Australia website at www.standards.com.au and looking up the relevant Standard in the online catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Australian Standard*, has a full listing of revisions and amendments published each month.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.com.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

Australian Standard™

**Identification cards—Contactless
integrated circuit(s) cards—Vicinity
cards**

Part 2: Air interface and initialization

First published as AS 15693.2—2003.

COPYRIGHT

© Standards Australia International

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 5120 2

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-012, Information Systems, Security and Identification Technology. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian rather than an Australian/New Zealand Standard.

It is identical with, and has been reproduced from ISO/IEC 15693-2:2000, *Identification cards—Contactless integrated circuit(s) cards—Vicinity, Part 2: Air interface and initialization* and Technical Corrigendum 1:2001 which is bound at the back of this Standard.

The objective of this Standard is to describe the electrical characteristics of the contactless interface between a vicinity card and a vicinity coupling device.

This Standard is Part 2 of AS 15693, *Identification cards—Contactless integrated circuit(s) cards—Vicinity cards*, which is published in parts as follows:

Part 1: Physical characteristics

Part 2: Air interface and initialization (this Standard)

Part 3: Anticollision and transmission protocol

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text ‘this part of ISO/IEC 15693’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

The normative reference in the source document has not been adopted as an Australian or Australian/New Zealand Standard.

CONTENTS

	<i>Page</i>
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	2
4.1 Abbreviations	2
4.2 Symbols	2
5 Initial dialogue for vicinity cards	2
6 Power transfer	3
6.1 Frequency	3
6.2 Operating field	3
7 Communications signal interface VCD to VICC	3
7.1 Modulation	3
7.2 Data rate and data coding	5
7.2.1 Data coding mode: 1 out of 256	5
7.2.2 Data coding mode: 1 out of 4	6
7.3 VCD to VICC frames	7
7.3.1 SOF to select 1 out of 256 code	7
7.3.2 SOF to select 1 out of 4 code	7
7.3.3 EOF for either data coding mode	7
8 Communications signal interface VICC to VCD	8
8.1 Load modulation	8
8.2 Subcarrier	8
8.3 Data rates	8
8.4 Bit representation and coding	8
8.4.1 Bit coding when using one subcarrier	8
8.4.2 Bit coding when using two subcarriers	9
8.5 VICC to VCD frames	10
8.5.1 SOF when using one subcarrier	10
8.5.2 SOF when using two subcarriers	11
8.5.3 EOF when using one subcarrier	11
8.5.4 EOF when using two subcarriers	11
Annex A (informative) Standards compatibility	13

Currently in preview, click buy full version

AUSTRALIAN STANDARD

Identification cards — Contactless integrated circuit(s) cards — Vicinity cards —

Part 2: Air interface and initialization

1 Scope

This part of ISO/IEC 15693 specifies the nature and characteristics of the fields to be provided for power and bi-directional communications between vicinity coupling devices (VCDs) and vicinity cards (VICs).

This part of ISO/IEC 15693 shall be used in conjunction with other parts of ISO/IEC 15693.

This part of ISO/IEC 15693 does not specify the means of generating coupling fields, nor the means of compliance with electromagnetic radiation and human exposure regulations which may vary according to country regulations and/or standards.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15693. For dated references, subsequent amendments to, or revision of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 15693 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 10373-7:—¹⁾, *Identification cards — Test methods — Vicinity cards*.

3 Terms and definitions

For the purposes of this part of ISO/IEC 15693, the terms and definitions given in ISO/IEC 15693-1 and the following apply.

3.1 modulation index

index $e = (a-b)/[a+b]$ where a and b are the peak and minimum signal amplitude respectively.

NOTE — The value of the index may be expressed as a percentage.

3.2 subcarrier

a signal of frequency f_s used to modulate the carrier of frequency f_c

¹⁾ To be published.