

Australian Standard<sup>®</sup>

**Information technology—Radio  
frequency identification for item  
management**

**Part 1: Reference architecture and  
definition of parameters to be  
standardized**

**STANDARDS**  
Australia



This Australian Standard® was prepared by Committee IT-034, Automatic Identification and Data Capture Techniques. It was approved on behalf of the Council of Standards Australia on 15 November 2006.

This Standard was published on 23 January 2007.

---

The following are represented on Committee IT-034:

- Australian Custom Service
  - Australian Data Capture Association
  - Australian Electrical and Electronic Manufacturers Association
  - Australian Retailers Association
  - Australian Veterinary Association
  - Department of Communications, Information Technology and the Arts
  - Department of Defence
  - Department of Primary Industries, Vic
  - GS1 Australia
  - RFID Association of Australia
  - The University of Adelaide
- 

This Standard was issued in draft form for comment as DR 06537.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment received.

---

### **Keeping Standards up-to-date**

Australian Standards® are living documents that 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Standards may also be withdrawn.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 that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting [www.standards.org.au](http://www.standards.org.au)

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at [mail@standards.org.au](mailto:mail@standards.org.au), or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

---

Australian Standard<sup>®</sup>

**Information technology—Radio  
frequency identification for item  
management**

**Part 1: Reference architecture and  
definition of parameters to be  
standardized**

First published as AS ISO/IEC 18000.1—2007.

**COPYRIGHT**

© Standards Australia

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 GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7974 3

## PREFACE

This Standard was prepared by the Standards Australia Committee IT-034, Automatic Identification and Data Capture Techniques.

The objective of this Standard is to provide a description of the generic architecture concepts in which item identification may commonly be required within the logistics and supply chain and defines the parameters that need to be determined in any standardized air interface definition.

This Standard is identical with, and has been reproduced from ISO/IEC 18000-1:2004 *Information technology—Radio frequency identification for item management—Part 1: Reference architecture and definition of parameters to be standardized*.

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 18000’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian Standard</i>
ISO/IEC	AS ISO/IEC
19762 Information technology—Automatic (all identification and data capture (AIDC) parts) techniques—Harmonized vocabulary	19762 Information technology—Automatic (all identification and data capture (AIDC) parts) techniques—Harmonized vocabulary

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

## CONTENTS

	<i>Page</i>
1	<b>Scope</b> ..... 1
2	<b>Normative references</b> ..... 1
3	<b>Terms and definitions</b> ..... 1
4	<b>Symbols and abbreviated terms</b> ..... 2
5	<b>Architectures, references and exclusions</b> ..... 3
5.1	<b>Communications architecture</b> ..... 3
5.2	<b>System specification</b> ..... 3
5.3	<b>Interface specification</b> ..... 6
5.4	<b>Application architecture</b> ..... 6
5.5	<b>Information and data architecture</b> ..... 6
5.6	<b>Implementation architecture</b> ..... 6
5.7	<b>System security architecture</b> ..... 6
5.8	<b>Resilience considerations</b> ..... 6
5.9	<b>Unique identification</b> ..... 6
6	<b>Requirements</b> ..... 6
6.1	<b>Vision statement</b> ..... 6
6.2	<b>Mission statement</b> ..... 7
6.3	<b>Conformance and Commands</b> ..... 7
6.4	<b>General (Context)</b> ..... 8
6.5	<b>Instruction to developers of subsequent parts of ISO/IEC 18000 and to installers</b> ..... 8
6.6	<b>Context (OSI)</b> ..... 10
6.7	<b>Bi-directional systems</b> ..... 10
6.8	<b>Uni-directional systems</b> ..... 11
6.9	<b>Relationship to other standards</b> ..... 11
6.10	<b>Parameters</b> ..... 11
6.11	<b>Physical and media access control parameters</b> ..... 12
6.12	<b>Protocol and collision management parameters</b> ..... 18
7	<b>Modulation</b> ..... 21
8	<b>Patents and intellectual property</b> ..... 21
8.1	<b>Responsibilities regarding patents and intellectual property</b> ..... 21
8.2	<b>Patents referenced in ISO/IEC 18000</b> ..... 21
	<b>Annex A (informative) Reference co-ordinates for regional and national regulations</b> ..... 22
	<b>Annex B (informative) Protocol for parameter definition standards (including parameter definition tables)</b> ..... 23
	<b>Annex C (informative, Architectural views of logistic and distribution systems</b> ..... 38
	<b>Annex D (informative, Unique identifier</b> ..... 49
	<b>Annex E (informative) Intellectual property: patents</b> ..... 51

## INTRODUCTION

ISO/IEC 18000 has been developed by ISO/IEC SC 31 WG 4, radio frequency identification for item identification and management, in order to provide parameter definitions for communications protocols within a common framework for internationally useable frequencies for radio frequency identification (RFID), and where possible, to determine the use of the same protocols for ALL frequencies such that the problems of migrating from one to another are diminished; to minimise software and implementation costs; and to enable system management and control and information exchange to be common as far as is possible.

Informative Annexes to this part of ISO/IEC 18000 provide contact information in respect of the radio regulations within which such systems have to operate, and some informational views of system architectures within which RFID for item management is likely to be used (Annexes A and C).

## AUSTRALIAN STANDARD

**Information technology — Radio frequency identification for item management —****Part 1:  
Reference architecture and definition of parameters to be standardized****1 Scope**

**1.1** This part of ISO/IEC 18000 describes the generic architecture concepts in which item identification may commonly be required within the logistics and supply chain and defines the parameters that need to be determined in any standardized air interface definition in the subsequent parts of ISO/IEC 18000. The subsequent parts of ISO/IEC 18000 provide the specific values for definition of the air interface parameters for a particular frequency/type of air interface from which compliance to (or non-compliance with) this part of ISO/IEC 18000 can be established. This part of ISO/IEC 18000 also provides description of example conceptual architectures in which these air interfaces are often to be utilized.

**1.2** This part of ISO/IEC 18000 limits its scope to transactions and data exchanges across the air interface at **Reference point delta** (see Figure 1). The means of generating and managing such transactions, other than a requirement to achieve the transactional performance determined within this part of ISO/IEC 18000, are outside the scope of this part of ISO/IEC 18000, as is the definition or specification of any supporting hardware, firmware, software or associated equipment.

**1.3** Standardization of other reference points is outside the scope of this part of ISO/IEC 18000. (See Figure 1.)

**1.4** This part of ISO/IEC 18000 is an enabling standard which supports and promotes several RFID implementations without making conclusions about the relative technical merits of any available option for any possible application.

**1.5** This part of ISO/IEC 18000 also provides reference information in respect of patents that have been declared to the developer of ISO/IEC 18000 as pertinent and provides reference addresses in respect of regulations under which ISO/IEC 18000 must operate.

**2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 15762 (all parts), *Information technology — AIDC techniques — Harmonized vocabulary*<sup>1)</sup>

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 (all parts) and the following apply.

---

1) To be published.