

Australian Standard[®]

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

**Part 2: Parameters for air interface
communications below 135 kHz**

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.

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- 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
-

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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 common technical specification for RFID devices operating below 135 kHz to allow for compatibility and to encourage inter-operability of products for the growing RFID market in the international marketplace.

This Standard is identical with, and has been reproduced from ISO/IEC 18000-2:2004 *Information technology—Radio frequency identification for item management—Part 2: Parameters for air interface communications below 135 kHz*

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	AS
11784 Radio frequency identification of animals—Code structure	5018 Electronic animal identification — National coding scheme (ISO 11784:1996, MOD)
11785 Radio frequency identification of animals—Technical concept	5019 Electronic animal identification— Radiofrequency methods
ISO/IEC	AS ISO/IEC
15418 Information technology—EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance	15418 Information technology— EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance
15961 Information technology—Radio frequency identification (RFID) for item management—Data protocol: application interface	15961 Information technology—Radio frequency identification (RFID) for item management—Data protocol: application interface
15962 Information technology—Radio frequency identification (RFID) for item management—Data protocol: data encoding rules and logical memory functions	15962 Information technology—Radio frequency identification (RFID) for item management—Data protocol: data encoding rules and logical memory functions
18000-1 Information technology—Radio frequency identification for item management—Part 1: Reference architecture and definition of parameters to be standardized	18000.1 Information technology—Radio frequency identification for item management—Part 1: Reference architecture and definition of parameters to be standardized

ISO/IEC		AS ISO/IEC	
19762	Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary	19762	Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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.

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INTRODUCTION

ISO/IEC 18000 is a series of International Standards describing common communications protocols for the purpose of Radio Frequency Identification for Item Management.

This part of ISO/IEC 18000 relates to systems operating at frequencies less than 135 kHz.

It has been developed in accordance with the requirements determined in ISO 18000-1, *Information technology — Radio frequency identification for item management — Reference architecture and definition of parameters to be standardized*.

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AUSTRALIAN STANDARD

Information technology — Radio frequency identification for item management —

Part 2: Parameters for air interface communications below 135 kHz

1 Scope

This part of ISO/IEC 18000 defines the air interface for radio frequency identification (RFID) devices operating below 135 kHz used in item management applications. Its purpose is to provide a common technical specification for RFID devices to allow for compatibility and to encourage inter-operability of products for the growing RFID market in the international marketplace. This part defines the forward and return link parameters for technical attributes including, but not limited to, operating frequency, operating channel accuracy, occupied channel bandwidth, spurious emissions, modulation, duty cycle, data coding, bit rate, bit rate accuracy, bit transmission order. It further defines the communications protocol used in the air interface.

This part contains two types. The detailed technical differences between the types are shown in the parameter tables.

This part of ISO/IEC 18000 specifies

- The physical layer that is used for communication between the interrogator and the tag.
- The protocol and the commands
- The method to detect and communicate with one tag among several tags (“anti-collision”)

It specifies two types of tags: Type A (FDX) and Type B (HDX). These two types differ only by their physical layer. Both types support the same anti-collision and protocol.

FDX tags are permanently powered by the interrogator, including during the tag-to-interrogator transmission. They operate at 125 kHz.

HDX tags are powered by the interrogator, except during the tag-to-interrogator transmission. They operate at 134,2 kHz. An alternative operating frequency is described in Annex B.

An optional anti-collision mechanism is described in Annex D.

2 Conformance

2.1 Tag

To claim conformance with this part of ISO/IEC 18000, a tag shall be of either Type A or B.

NOTE Nothing in this part of ISO/IEC 18000 prevents a tag to be of both types, although for technical reasons, it is unlikely that such tags are ever marketed.