Australian Standard®

Information technology—Radio frequency identification for item management

Part 6: Parameters for air interface communications at 860 MHz to 960 MHz

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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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

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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 to operating in the 860 MHz to 960 MHz Industrial, Scientific, and Medical (ISM) band used in item management applications.

This Standard is identical with, and has been reproduced from ISO/IEC 18000-6:2004, *Information technology—Radio frequency identification for item management*—Part 6: *Parameters for air interface communications at 860 MHz to 960 MHz*.

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:

Reference to International Standard		*Australian Standard*	
ISO/IEC 19762-3	Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary—Part 3: Radio frequency identification (RFID)	AS ISO/IEC 19762.3	Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary—Part 3: Radio frequency identification (RFID)

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

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.

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INTRODUCTION

This part of ISO/IEC 18000 describes a passive backscatter RFID system that supports the following system capabilities:

- Identification and communication with multiple tags in the field
- Selection of a subgroup of tags for identification or with which to communicate
- Reading from and writing to or rewriting data many times to individual tags
- User-controlled permanently lockable memory
- Data integrity protection
- Interrogator-to-tag communications link with error detection
- Tag-to-interrogator communications link with error detection.
- Support for both passive back-scatter tags with or without batteries.

In this RFID system, the interrogator powers and communicates with the tags that are within range. Tags receive data as amplitude modulation of the power/data signal from the interrogator. During the time that the tag responds to the interrogator, the interrogator transmits at a constant radio frequency power level, while the tag modulates the impedance of its radio frequency load attached to the tag antenna terminals. The interrogator then receives the data back from the tag as a variation in a reflection of its transmitted power.

AUSTRALIAN STANDARD

Information technology — Radio frequency identification for item management —

Part 6:
Parameters for air interface communications at 860 MHz to 960 MHz

1 Scope

This part of ISO/IEC 18000 defines the air interface for radio frequency identification (RFID) devices operating in the 860 MHz to 960 MHz Industrial, Scientific, and Medical (ISM) band used in item management applications. Its purpose is to provide a common technical specification for RFID devices that may be used by ISO committees developing RFID application standards. This part of ISO/IEC 18000 is intended to allow for compatibility and to encourage inter-operability of products for the growing RFID market in the international marketplace. This part of ISO/IEC 18000 defines the forward and return link parameters for technical attributes including, but not limited to, operating frequency, operating channel accuracy, occupied channel bandwidth, maximum EIRP, spurious emissions, modulation, duty cycle, data coding, bit rate, bit rate accuracy, bit transmission order, and where appropriate, operating channels, frequency hop rate, hop sequence, spreading sequence, and chip rate. It further defines the communications protocol used in the air interface.

This part of ISO/IEC 18000 contains one mode with two types. Both types use a common return link and are reader talks first. Type A uses Pulse Interval Encoding (PIE) in the forward link, and an adaptive ALOHA collision arbitration algorithm. Type B uses Manchester in the forward link and an adaptive binary tree collision arbitration algorithm. The detailed technical differences between the two types are shown in the parameter tables.

2 Conformance

2.1 Interrogator conformance and obligations

To conform to this part of ISO/IEC 18000, the interrogator shall support both communication types. It shall be able to switch from one type to the other.

The interrogator shall be locally programmable by the user to switch from one type to the other and to control the sequence and allocation of the ratio of time between the two types.

The proportion of the total time spent by the interrogator in addressing each type of tag shall be field-programmable from 0% to 100%.

Interrogators shall be set up to operate within local regulations.

2.2 Tag conformance and obligations

To conform to this part of ISO/IEC 18000, the tag shall support at least one type. It may optionally support both.