

Australian Standard[®]

**Information technology—Automatic
identification and data capture
techniques—Radio frequency
identification device performance test
methods**

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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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 test method guidelines for performance characteristics of radio frequency identification (RFID) devices (tags and interrogation equipment) for item management, and to specify the general requirements and test requirements for tag and interrogator performance which are applicable to the selection of the devices for an application.

This Standard is identical with, and has been reproduced from ISO/IEC 18000-20:05, *Information technology—Automatic identification and data capture techniques—Radio frequency identification device performance test methods*.

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

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<i>Reference to International Standard</i>	<i>Australian Standard</i>
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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
18000-2 Part 2: Parameters for air interface communications below 135 kHz	18000.2 Part 2: Parameters for air interface communications below 135 kHz
18000-3 Part 3: Parameters for air interface communications at 13,56 MHz	18000.3 Part 3: Parameters for air interface communications at 13.56 MHz
18000-4 Part 4: Parameters for air interface communications at 2,45 GHz	18000.4 Part 4: Parameters for air interface communications at 2.45 GHz
18000-6 Part 6: Parameters for air interface communications at 860 MHz to 960 MHz	18000.6 Part 6: Parameters for air interface communications at 860 MHz to 960 MHz
18000-7 Part 7: Parameters for active air interface communications at 433 MHz	18000.7 Part 7: Parameters for active air interface communications at 433 MHz
19762-3 Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary—Part 3: Radio frequency identification (RFID)	19762.3 Information technology—Automatic identification and data capture (AIDC) techniques—Harmonized vocabulary—Part 3: Radio frequency identification (RFID)

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

Radio frequency identification (RFID) technology has broad applicability to the automatic identification and data capture (AIDC) industry in item management. As a wireless communication technique based on RF technology the applications cover multiple levels of the industrial, commercial and retail supply chains. These may include

- freight containers,
- returnable transport items (RTIs),
- transport units,
- product packaging,
- product tagging.

The performance characteristics of devices (tags and interrogation equipment) may vary drastically due to application factors as well as the particular RF air interface (frequency, modulation, protocol, etc.) being supported. Of key concern is the matching of the various performance characteristics to the user application. Additionally, in an open environment users of such technology demand multiple sources for these devices from technology providers. A key challenge is a method of evaluating the differences between various technology providers' products in a consistent and equitable manner.

This International Standard provides a framework for meeting the above noted concern and challenges. To this end, a clear definition of performance as it relates to user application of RFID technology in the supply chain is provided. Based on such application-based definitions, test methods are defined with attention to the test parameters that must be defined and controlled to a consistent evaluation of RFID devices.

It should be noted that the test methods defined in this International Standard form the basic framework for performance evaluation and are not exclusive. Many applications may require a slightly different set of test conditions to match the use of RFID to the user requirements. The test methods defined herein may be modified to accommodate the specifics of the application as specified by the user.

Of particular significance, the tests are defined for RFID devices having one antenna. It is common practice to have products with both single and multiple antennas to define an RFID transaction zone sufficient for the application. The defined methods can easily be extended from equipment with a single antenna to apply to equipment with multiple antennas, in order to evaluate performance under conditions more closely matching those of a particular application.

AUSTRALIAN STANDARD

Information technology — Automatic identification and data capture techniques — Radio frequency identification device performance test methods

1 Scope

This International Standard defines test methods for performance characteristics of radio frequency identification (RFID) devices (tags and interrogation equipment) for item management, and specifies the general requirements and test requirements for tag and interrogator performance which are applicable to the selection of the devices for an application. It does not apply to testing in relation to regulatory or similar requirements.

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 18000-1:2004, *Information technology — Radio frequency identification for item management — Part 1: Reference architecture and definition of parameters to be standardized*

ISO/IEC 18000-2:2004, *Information technology — Radio frequency identification for item management — Part 2: Parameters for air interface communications below 135 kHz*

ISO/IEC 18000-3:2004, *Information technology — Radio frequency identification for item management — Part 3: Parameters for air interface communications at 13,56 MHz*

ISO/IEC 18000-4:2004, *Information technology — Radio frequency identification for item management — Part 4: Parameters for air interface communications at 2,45 GHz*

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*

ISO/IEC 18000-7:2004, *Information technology — Radio frequency identification for item management — Part 7: Parameters for active air interface communications at 433 MHz*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

identification range

range at which an RFID system shall reliably identify desired tags under a variety of conditions

NOTE Adapted from ISO/IEC 19762-3:2005.