

Information technology — Radio frequency identification for item management —

Part 7: Parameters for active air interface communications at 433 MHz

ICS 35.040

National foreword

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The UK participation in its preparation was entrusted to Technical Committee IST/34, Automatic identification and data capture techniques, which has the responsibility to:

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The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

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Part 7: Parameters for active air interface communications at 433 MHz

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*Partie 7: Paramètres pour les communications actives d'une interface
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

ISO/IEC 18000-7 was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

ISO/IEC 18000 consists of the following parts, under the general title *Information technology — Radio frequency identification for item management*:

- *Part 1: Reference architecture and definition of parameters to be standardized*
- *Part 2: Parameters for air interface communications below 135 kHz*
- *Part 3: Parameters for air interface communications at 13,56 MHz*
- *Part 4: Parameters for air interface communications at 2,45 GHz*
- *Part 6: Parameters for air interface communications at 860 MHz to 960 MHz*
- *Part 7: Parameters for active air interface communications at 433 MHz*

Introduction

This part of ISO/IEC 18000 is intended to address RFID devices operating in the 433 MHz frequency band, providing an air interface implementation for wireless, non-contact information system equipment for Item Management applications. Typical applications operate at ranges greater than one meter.

The RFID system includes a host system and RFID equipment (interrogator and tags). The host system runs an application program, which controls interfaces with the RFID equipment. The RFID equipment is composed of two principal components: tags and interrogators. The tag is intended for attachment to an item, which a user wishes to manage. It is capable of storing a tag ID number and other data regarding the tag or item and of communicating this information to the interrogator. The interrogator is a device, which communicates to tags in its RF communication range. The interrogator controls the protocol, reads information from the tag, directs the tag to store data in some cases, and ensures message delivery and validity. This system uses an active tag.

RFID systems defined by this part of ISO/IEC 18000 provide the following minimum features:

- Identify tag in range
- Read data
- Write data or handle read only systems gracefully
- Selection by group or address
- Graceful handling of multiple tags in the field of view
- Error detection

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning radio-frequency identification technology given in sub-clause 6.2.

ISO and IEC take no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the ISO and IEC that they are willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO and IEC. Information may be obtained from the following companies.

Contact details	Patent holder	Patent title	Patent number	Affected subclause in this part of ISO/IEC 18000
Ravi Rajapaksi, Chief Technology Officer, Savi Technology, Inc., 615 Tasman Dr., Sunnyvale, CA 94089 USA	Savi Technology	Communication System for Communicating with Tags	US 5640151	6.2.6
	Savi Technology	Communication System for Communicating with Tags	US 5686902	6.2.6
	Savi Technology	Method and Apparatus for Radio Identification and Tracking	EP 0467036	6.2.6
Rob Sokohl, Sterne, Kessler, Goldstein & Fox P.L.L.C., 1100 New York Avenue NW, Washington, DC 20005-3934 USA	Matrics Technology	System and method for electronic inventory	US 6002344	6.2

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO or IEC shall not be held responsible for identifying any or all such patent rights.

Information technology — Radio frequency identification for item management —

Part 7: Parameters for active air interface communications at 433 MHz

1 Scope

This part of ISO/IEC 18000 defines the air interface for radio frequency identification (RFID) devices operating as an active RF Tag in the 433 MHz band used in item management applications. The purpose of this part of ISO/IEC 18000 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 power, 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. This part of ISO/IEC 18000 further defines the communications protocol used in the air interface.

2 Conformance

The rules for RFID device conformity evaluation will be given in a future Technical Report (ISO/IEC TR 18047-7).

3 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 15963, *Information technology — Radio frequency identification for item management — Unique identification for RF tags*

ISO/IEC 19762-1, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 1: General terms relating to AIDC*¹⁾

ISO/IEC 19762-3, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 3: Radio frequency identification (RFID)*¹⁾

1) To be published.