INTERNATIONAL STANDARD

ISO/IEC 19762-3

Second edition
2008-06-15

Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary —

Part 3: Radio frequency identification (RFID)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Technologies de l'information — Techniques automatiques d'identification et de saisie de données (AIDC) — Vocabulaire harmonisé —

Partie 3: Identification par radiofréquence (RFID)

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

Reference number
ISO/IEC 19762-3:2008(E)

© ISO/IEC 2008

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

 © ISO/IEC 2008 – All rights reserved

Contents

Page

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

© ISO/IEC 2008 – All rights reserved

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.

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

ISO/IEC 19762-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This second edition cancels and replaces the first edition (ISO/IEC 19762-3:2005), which has been technically revised.

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

ISO/IEC 19762 consists of the following parts, under the general title *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*:

— *Part 1: General terms relating to AIDC*

— *Part 2: Optically readable media (ORM)*

— *Part 3: Radio frequency identification (RFID)*

— *Part 4: General terms relating to radio communications*

— *Part 5: Locating systems*

© ISO/IEC 2008 – All rights reserved

Introduction

ISO/IEC 19762 is intended to facilitate international communication in information technology, specifically in the area of automatic identification and data capture (AIDC) techniques. It provides a listing of terms and definitions used across multiple AIDC techniques.

Abbreviations used within each part of ISO/IEC 19762 and an index of all definitions used within each part of ISO/IEC 19762 are found at the end of the relevant part.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

© ISO/IEC 2008 – All rights reserved

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary —

Part 3:
Radio frequency identification (RFID)

1 Scope

This part of ISO/IEC 19762 provides terms and definitions unique to radio frequency identification (RFID) in the area of automatic identification and data capture techniques. This glossary of terms enables the communication between non-specialist users and specialists in RFID through a common understanding of basic and advanced concepts.

2 Classification of entries

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b5940b5-1558-4bef-aa1b-017bb52229f1/iso-iec-19762-3-2008

The numbering system employed within ISO/IEC 19762 is in the format nn.nn.nnn, in which the first two numbers (***nn***.nn.nnn) represent the "Top Level" reflecting whether the term is related to 01 = common to all AIDC techniques, 02 = common to all optically readable media, 03 = linear bar code symbols, 04 = two-dimensional symbols, 05 = radio frequency identification, 06 = general terms relating to radio, 07 = real time locating systems, and 08 = MIIM. The second two numbers (nn.***nn***.nnn) represent the "Mid Level" reflecting whether the term is related to 01 = basic concepts/data, 02 = technical features, 03 symbology, 04 = hardware, and 05 = applications. The third two or three numbers (nn.nn.***nnn***) represent the "Fine" reflecting a sequence of terms.

The numbering in this part of ISO/IEC 19762 employs "Top Level" numbers (**nn**.nn.nnn) of 05.

3 Terms and definitions

05.01.01
radio frequency identification
RFID
use of electromagnetic or inductive coupling in the radio frequency portion of the spectrum to communicate to or from a tag through a variety of modulation and encoding schemes to uniquely read the identity of an RF Tag

05.01.02
backscatter(1)
process whereby a **transponder** responds to a reader/interrogation signal or field by modulating and re-radiating or transmitting the response signal at the same carrier **frequency**

05.01.03
backscatter(2)
technique for retrieving information from a **tag** in which the narrow band energy from the **interrogator** is reflected back to the interrogator in varying degrees as the impedance of the tag **antenna** is modulated

© ISO/IEC 2008 – All rights reserved

05.01.04
awake
state at which the **tag's** receiver is powered and able to receive and respond to a transmission from a compliant **interrogator**

05.01.05
enrolment
process by which a **tag** initially becomes associated with an **interrogator**

05.01.06
false activation
response due to the result of a 'foreign' or non-assigned **transponder** entering the **interrogation zone** of a radio frequency **identification** system and effecting a response, erroneous or otherwise

05.01.07
family of tags
group of **tags** with differing capabilities which are nevertheless capable of communicating ID numbers and/or data with a common **interrogator**

05.01.08
in field reporting
mode of operation in which a **reader/interrogator** reports a t**ransponder** ID when the transponder enters the **interrogation zone** and then periodically at a prescribed interval of time while the tag remains in the interrogation zone

cf. **out of field reporting**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

05.01.09
out of field reporting
mode of operation in which the identification of a **transponder** is reported as or once the transponder leaves the reader **interrogation zone**

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

05.01.10
interrogation
process of communicating with and reading a **transponder**

05.01.11
interrogation zone
region in which a **transponder** or group of transponders can be effectively read by an associated **radio frequency identification** reader/interrogator

05.01.12
tag ID
generic reference to either a manufacturer **tag ID** or user **tag ID**

05.01.13
user tag ID
user-defined **tag** identifier

NOTE The user **tag ID** may not be a unique identifier.

05.01.14
manufacturer tag ID
reference number which uniquely identifies the **tag**

05.01.15
orientation sensitivity
sensitivity of response for a **transponder** expressed as a function of angular variation or orientation

© ISO/IEC 2008 – All rights reserved

05.01.16
phantom transaction
report of a non-existent **tag**

05.01.17
INCITS T6
technical committee of the ANSI accredited standards developer responsible for the development of **RFID** technical standards within the United States

NOTE Formerly known as X3T6 and NCITS T6.

05.01.18
rate
quantity of tags per unit time including impulse and steady state

NOTE Tag population will be both static and dynamic.

05.02.01
identify
process of tag segregation and isolation, resulting in a uniquely addressable means to communicate with a **tag** (the tag ID)

NOTE Application data has not been accessed.

05.02.02
identification range
range at which an RFID system can reliably identify desired tags under defined conditions

iTeh STANDARD PREVIEW
(standards.iteh.ai)

05.02.03
identification rate
rate at which an RFID system can reliably identify desired tags under defined conditions

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

05.02.04
read
process of tag transaction to retrieve information from identified tag population, including both single byte and multiple byte transactions

05.02.05
read range
range at which an RFID system can reliably read from desired tags under defined conditions

05.02.06
read rate
rate at which an RFID system may reliably read desired tags under defined conditions

05.02.07
write(1)
process of tag transaction to write information into identified tag population

NOTE This process will include both single byte and multiple byte transactions. Write with verification will be available.

05.02.08
write range
range at which an RFID system may reliably write to desired tags under defined conditions

05.02.09
write rate
rate at which an RFID system may reliably write to desired tags under defined conditions

© ISO/IEC 2008 – All rights reserved

05.02.10
pick rate
percentage detection rate for an **RF** system

NOTE This is a function the speed of throughput, **tag** orientation, number of tags present, etc.

05.02.11
in-use programming
tags in read/write systems that have the ability to read from and **write** to a **transponder** while it is attached to the object or item for which it is being used

05.02.12
re-programmability
ability to change the data content of a **transponder** using a suitable **programming** device

cf. **in-use programming**

05.02.13
read only
transponder in which the data is stored in an unchangeable manner and can therefore only be read

cf. **factory programming**

05.02.14
field programming
programming information into the **tags** after the tag has been shipped from the manufacturer to an OEM customer or end user or in some cases to the manufacturer's distribution locations

iTeh STANDARD PREVIEW
(standards.iteh.ai)

NOTE Field programming usually occurs before the tag is installed on the object to be identified. This approach enables the introduction of data relevant to the specifics of the application into the tag at any time; however, the tag would typically have to be removed from its object. In some cases, change or duplication of all data in the tag is possible. In other cases, some portion is reserved for factory **programming**. This might include a unique tag serial number, for example. Field programming is usually associated with **Write Once Read Many (WORM)** and **read/write (RW)** devices. The data entered into a **transponder** may be by a combination of factory and field programming.

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/...

cf. **factory programming**, **field programming**

05.02.15
factory programming
entering of data into a **transponder** as part of the manufacturing process, resulting in a read-only **tag**

cf. **field programming**

05.02.16
return link (**uplink**)
communications from **tag** to **interrogator**

05.02.17
roaming
ability of a **tag** to move from one **interrogator's** cell to another

05.02.18
selection
process by which an **interrogator** requests that a specific **tag** or subset of tags responds to the interrogator

05.02.19
separation
operational distance between two **tags** or between a tag and the **interrogator**

© ISO/IEC 2008 – All rights reserved

05.02.20
shadowing
condition in which an object located between an **interrogator** and a **tag** obscures the signals thus preventing a successful transaction

05.02.21
abstract syntax
⟨OSI Presentation Service⟩ specification of application layer **data** or application protocol control information by using notation rules that are independent of the encoding technique used to represent them

05.02.22
inventoried flag
flag that indicates whether a tag may respond to an interrogator

NOTE Tags maintain a separate inventoried flag for each of four sessions, where each flag has symmetric A and B values within any given session, and in which interrogators typically inventory tags from A to B followed by a re-inventory of tags from B back to A (or vice versa).

05.02.23
inventory round
period initiated by a query command and terminated by either a subsequent query command (which also starts a new inventory round) or a select command

05.02.24
permalocked
memory location whose lock status is unchangeable (i.e. the memory location is permanently locked or permanently unlocked)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

05.02.25
persistent memory
memory whose state is maintained during a brief loss of tag power

ISO/IEC 19762-3:2008
https://standards.iteh.ai/catalog/standards/sist/6b594b85-1538-4bef-aaf9-617bb522291f/iso-iec-19762-3-2008

05.02.26
persistent flag
flag value whose state is maintained during a brief loss of tag power

05.02.27
transfer syntax
abstract syntax and concrete syntax used in the transfer of data between open systems

NOTE The term ‘transfer syntax’ is sometimes used to mean encoding rules, and sometimes used to mean the representation of bits in data while in transit.

05.02.28
type reference
name, in ASN.1 syntax, associated uniquely with a characteristic

EXAMPLE **ObjectId**

05.02.29
application family identifier
AFI
mechanism used in the **data protocol** and the air interface protocol to select a class of RFID tags relevant to an application, or aspect of an application, and to ignore further communications with other classes of RFID tags with different identifiers

05.02.30
data format
mechanism used in the **data protocol** to identify how **object identifiers** are encoded on the RFID tag, and (where possible) identify a particular data dictionary for the set of relevant object identifiers for that application

© ISO/IEC 2008 – All rights reserved