BS ISO/IEC 19762-4:2008

BSI Standards Publication

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

Part 4: General terms relating to radio communications

bsi.

...making excellence a habit.™

Document Sharing Hub

Full document details: BS ISO/IEC 19762-4:2008

National foreword

This British Standard is the UK implementation of ISO/IEC 19762-4:2008.

The UK participation in its preparation was entrusted to Technical Committee IST/34, Automatic identification and data capture techniques.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2012.

Published by BSI Standards Limited 2012.

ISBN 978 0 580 56599 1

ICS 35.040

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2012.

Amendments issued since publication

Amd. No.	Date	Text affected

Documents
Document Sharing Hub

Full document details: BS ISO/IEC 19762-4:2008

INTERNATIONAL STANDARD

ISO/IEC 19762-4

First edition
2008-06-15

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

Part 4:
General terms relating to radio communications

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

Partie 4: Termes généraux relatifs aux communications radio

Reference number
ISO/IEC 19762-4:2008(E)

Documents
Document Sharing Hub

© ISO/IEC 2008

Full document details: BS ISO/IEC 19762-4:2008

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.

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

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub

Full document details: BS ISO/IEC 19762-4:2008

Contents

Page

Foreword iv
Introduction v
1 Scope 1
2 Classification of entries 1
3 Terms and definitions. 1
4 Abbreviations 22
Bibliography 24
Index 25

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

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 19762-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

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
Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

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.

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

INTERNATIONAL STANDARD ISO/IEC 19762-4:2008(E)

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

Part 4:
General terms relating to radio communications

1 Scope

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

2 Classification of entries

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 06.

3 Terms and definitions

06.01.01
radio frequency
frequency of a periodic radio wave or of the corresponding periodical electrical oscillation

NOTE This term and its abbreviation may qualify an electrical device for generating or collecting radiated waves.

[IEC 60050-713:1998, 713-06-02]

NOTE Radio Frequency (RF) (in RID). Radio frequency between 30 Hz and 3 GHz.

06.01.02
radio frequency data communication
RF/DC
system by which remote devices communicate with a host computer via a radio link

NOTE 1 Hand-held **readers** can send the **information** collected back to a controlling process without the need for fixed wiring for the **data** cables.

NOTE 2 One common use for RF/DC is on forklift trucks.

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

06.01.03
electromagnetic field
field characterizing the electric and magnetic conditions of a material medium or of vacuum, defined by the following set of four vector quantities:

— E: electric field (vector)

— D: electric flux density (vector)

— H: magnetic field (vector)

— B: magnetic flux density (vector)

NOTE Adapted from IEC 50 (705):1995, 705-01-07.

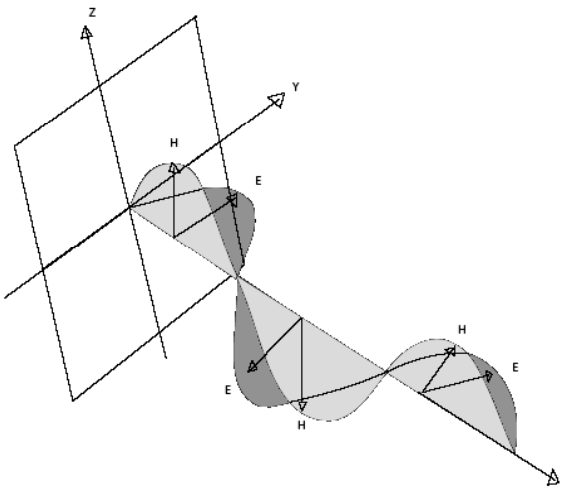

Figure 1 — Electromagnetic field

06.01.04
air interface
conductor-free medium, usually air, between a **transmitter** and the **receiver** through which communication, e.g. data and telemetry, is achieved by means of a modulated inductive or propagated **electromagnetic field**

[IEC 60050-702, 702-06-17]

06.01.05
electromagnetic spectrum
range or continuum of electromagnetic radiation, characterized in terms of frequency or wavelength

06.01.06
electromagnetic wave
wave characterized by the propagation of a time-varying electromagnetic field

NOTE An electromagnetic wave is produced by variations of electric charges or electric currents.

[IEC 50 (705):1995, 705-01-09]

© ISO/IEC 2008 – All rights reserved
Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

06.01.07
electric field
constituent of an electromagnetic field which is characterized by the electric field strength ***E*** together with the electric flux density ***D***

NOTE In French, the term “champ électrique” is also used for the quantity electric field strength.

[IEC 60050-121, 121-11-67]

06.01.08
far field region
region of an electromagnetic field of an antenna wherein the predominant components of the field are those which represent a propagation of energy and wherein the angular field distribution is essentially independent of the distance from the antenna

[IEC 50 (712):1992, 712-02-02]

NOTE 1 In the far field region, field distribution is unaffected by the **antenna** structure and the wave propagates as a plane wave.

cf. **radiating near field**

06.01.09
magnetic field
constituent of an electromagnetic field which is characterized by the magnetic field strength ***H*** together with the magnetic flux density ***B***

[221-01-01 MOD]

NOTE In French, the term “champ magnétique” is also used for the quantity magnetic field strength.

[IEC 60050-121, 121-11-69]

06.01.10
inductive coupling
process of transferring modulated data or energy from one system component to another, reader to **transponder** for example, by means of a varying magnetic field

NOTE An inductive coupled **tag** uses a coil to transfer data or power from the magnetic field output by an **interrogator**.

06.01.11
electromagnetic coupling
coupling through a **magnetic field**

NOTE Also referred to as inductive **coupling** or an **electric field**.

06.01.12
field strength
transmitter field intensity (deprecated)
magnitude of the electromagnetic field created at a given point by a radio transmitting system operating at a specified characteristic frequency with specified installation and modulation conditions

[IEC 50 (705):1995, 705-08-31]

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

06.01.13
equivalent isotropically radiated power
EIRP
product of the net radiated **RF** power of a **transmitter** and the **gain** of an **antenna** system in one direction relative to an isotropic source

NOTE 1 The maximum power **gain** of a transmitting antenna in any direction multiplied by the net power accepted by the antenna from the connected transmitter.

EXAMPLE 36 dBm EIRP equals 4 W transmitted into an isotropic antenna, or 1 W transmitted into a 6 dB antenna.

NOTE 2 Also referred to as Effective Isotropically Radiated Power, Equivalent Isotropical Radiated Power, and Effective Isotropical Radiated Power.

06.01.14
effective radiated power
ERP
amount of power actually radiated by a transmitter and antenna combination (the applied power multiplied by the efficiency of the antenna)

cf. **EIRP**

NOTE To convert between ERP and EIRP, add 2,15 dB, as a dipole antenna has a gain of 2,15 dBi. For example, to convert the European Power output of 2 W ERP (which is +33 dBm) to EIRP, add 2,15 dB to get +35,15 dBm, which is very close to the FCC limit of 4 W EIRP (+36 dBm).

06.01.15
frequency
number of cycles a periodic signal executes in unit time

NOTE Usually expressed in hertz (cycles per second) or appropriate weighted units such as **kilohertz (kHz), megahertz (MHz) and gigahertz (GHz)**.

06.01.16
frequency band
continuous set of frequencies lying between two specified limiting frequencies

NOTE 1 A frequency band is characterized by two values which define its position in the frequency spectrum, for instance its lower and upper limiting frequencies, as opposed to the bandwidth which is characterized by one value.

NOTE 2 The nomenclature of the frequency and wavelength bands used in RFID are given in Table 1.

NOTE 3 Certain frequency ranges are sometimes designated by letter symbols consisting of capital letters which may be accompanied by a small letter as subscript.

NOTE 4 Adapted from IEC 60050-713.

© ISO/IEC 2008 – All rights reserved
Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008

Table 1 — Nomenclature of frequency and wavelength bands

BAND NUMBER (NOTE 1)	ABBRE-VIATION	FREQUENCY RANGE (lower limit exclusive, upper limit exclusive)				METRIC QUALIFIER (NOTE 4)	METRIC ABBRE-VIATION of the band (NOTE 3)	WAVELENGTH RANGE (lower limit exclusive, upper limit exclusive)			
–1	(NOTE 2)	0,03	to	0,3	Hz	gigametric	B.Gm	1	to	1	Gm
0	(NOTE 2)	0,3	to	03	Hz	hectomegametric	B.hMm	100	to	1000	Mm
1	(NOTE 2)	3	to	30	Hz	decamegametric	B.daMm	10	to	100	Mm
2	(NOTE 2)	30	to	300	Hz	megametric	B.Mm	1	to	10	Mm
3	ULF	300	to	3000	Hz	hectokilometric	B.hkm	100	to	1000	km
4	VLF	3	to	30	kHz	myriametric	B.Mam	10	to	100	km
5	LF	30	to	300	kHz	kilometric	B.km	1	to	10	km
6	MF	300	to	3000	kHz	hectometric	B.hmm	100	to	1000	m
7	HF	3	to	30	MHz	decametric	B.dam	10	to	100	m
8	VHF	30	to	300	MHz	metric	B.m	1	to	10	m
9	UHF	300	to	3000	MHz	decimetric	B.dm	100	to	1000	mm
10	SHF	3	to	30	GHz	centimetric	B.cm	10	to	100	mm

NOTE 1 "Band number N" extends from 0,3 × 10 N to 3 × 10 N Hz

NOTE 2 The abbreviation ELF designates the set of bands –1 to 2.

NOTE 3 In French, abbreviations with letter O ("Ondes") are sometimes used (e.g. O.km "Ondes kilométriques") instead of abbreviations with letter B ("Bande") indicated in the column "metric abbreviation" of the table.

NOTE 4 Metric qualifiers and abbreviations are not names or symbols of unit, and so may use the combination of prefixes in some cases.

Adapted from IEC 60050-713.

06.01.17
kilohertz
kHz
measure of **frequency** equal to one thousand (1,000) cycles per second

06.01.18
megahertz
MHz
measure of **frequency** equal to one million (1,000,000) cycles per second

06.01.19
gigahertz
GHz
measure of **frequency** equal to one billion (1,000,000,000) cycles per second

06.01.20
continuous wave
typically sinusoidal wave at a given frequency, but more generally any interrogator waveform suitable for powering a passive tag without amplitude and/or phase modulation cover-coding method by which an interrogator obscures information that it is transmitting to a tag

NOTE To cover-code data or a password, an interrogator first requests a random number from the tag, then performs a bit-wise EXOR of the data or password with the received random number, and, finally, transmits the cover-coded (also called ciphertext) string to the tag; the tag uncovers the data or password by performing a bit-wise EXOR of the received cover-coded string with the original random number.

© ISO/IEC 2008 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO/IEC 19762-4:2008