

Infrardeče brezžične aplikacije (IEC 61920:2004)

Infrared free air applications (IEC 61920:2004)

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EUROPEAN STANDARD

EN 61920

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2004

ICS 31.260; 33.100

Supersedes EN 61920:1998

English version

Infrared free air applications
(IEC 61920:2004)

Applications infrarouge
en mode non guidé
(CEI 61920:2004)

Nichtleitungsgebundene
Infrarot-Anwendungen
(IEC 61920:2004)

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This European Standard was approved by CENELEC on 2004-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 100/717/FDIS, future edition 2 of IEC 61920, prepared by IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61920 on 2004-03-01.

This European Standard supersedes EN 61920:1998.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61920:2004 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

<u>SIST EN 61920:2004</u>		
IEC 60825-1	NOTE	Harmonized as EN 60825-1:1994 (not modified).
IEC 61603-1	NOTE	Harmonized as EN 61603-1:1997 (not modified).
IEC 61603-2	NOTE	Harmonized as EN 61603-2:1997 (not modified).
IEC 61603-3	NOTE	Harmonized as EN 61603-3:1998 (not modified).
IEC 61603-6	NOTE	Harmonized as EN 61603-6:2002 (not modified).

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-713	1998	International Electrotechnical Vocabulary Part 713: Radiocommunications: transmitters, receivers, networks and operation	-	-
IEC 60050-845	1987	Chapter 845: Lighting	-	-
IEC 60417	database	Graphical symbols for use on equipment	-	-
IEC 60747-5-1	1997	Discrete semiconductor devices and integrated circuits Part 5-1: Optoelectronic devices – General	EN 60747-5-1	2001
ISO/IEC 7498-1	1994	Information technology - Open systems interconnection - Basic reference model Part 1: The basic model	EN ISO/IEC 7498-1	1995

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INTERNATIONAL STANDARD

IEC 61920

Second edition
2004-01

Infrared free air applications

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International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INFRARED FREE AIR APPLICATIONS

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61920, has been prepared by technical area 3, Infrared systems and applications, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 1998. This edition constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
100/717/FDIS	100/749/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INFRARED FREE AIR APPLICATIONS

1 Scope and object

This International Standard describes the classification of IR devices into groups and classes in order to identify and clarify problems caused by mutual interference. Mutual interference is caused by the increasing parallel application of different infrared (IR) systems.

Due to its physical characteristics, the possibility of local limitation is a special feature of IR radiation.

In this standard, the wavelength range from 700 nm to 1 600 nm is considered. All systems based on free air application which intentionally or unintentionally use IR radiation in this range, are included. Products which unintentionally emit IR radiation, such as illumination equipment are not deemed to be IR application systems. They are, however, integrated into this standard in order to enable facility planners to take into consideration and to foresee provisions against disturbance of IR application systems by such unintentionally emitted radiation.

The object of this standard is to prevent or at least to minimize mutual interference and to allow the coexistence of different IR products. It is intended to identify each IR product by its characteristics, according to the classification criteria.

It is not the object of this standard to describe the consequences of interference between IR systems or safety aspects of optical radiation.

All applications of fibre-optic technology are excluded.

In this context “free air” means freely radiated IR in indoor or outdoor applications.

If the IR systems are used for information transmission, this standard is only relevant in connection with the physical layer of the open systems interconnection (OSI) reference model (ISO 7498-1).

NOTE The reader should be aware that a risk of interference between different infrared systems as assessed by this standard is based on general parameters and therefore cannot take all the parameters involved into account. In many cases the practical results may differ from those expected, for example the positioning of sender and receiver and the choice of advanced coding and decoding schemes. All these factors beyond the physical layer may have an effect on the final result.

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.

IEC 60050-713:1998, *International Electrotechnical Vocabulary (IEV) – Part 713: Radio-communications: transmitters, receivers, networks and operation*

IEC 60050-845:1987, *International Electrotechnical Vocabulary (IEV) – Chapter 845: Lighting*

IEC 60417-DB:2002¹, *Graphical symbols for use on equipment*

IEC 60747-5-1:1997, *Discrete semiconductor devices and integrated circuits – Part 5-1: Optoelectronic devices – General*

ISO/IEC 7498-1:1994, *Information technology – Open systems interconnection – Basic reference model: The basic model*

3 Terms and definitions

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

3.1

bandwidth (of a receiver, amplifier or network)

extent of a continuous range of electrical frequencies or optical wavelengths over which the response does not differ from its nominal value by more than a specified amount

[IEV 713-06-19, modified]

3.2

directivity

defined by two angles β_A and β_B for describing the dependence of the receiver's sensitivity from the direction of incidence. The direction in which the receiver output V [mV] is maximum might be called optical receiver axis.

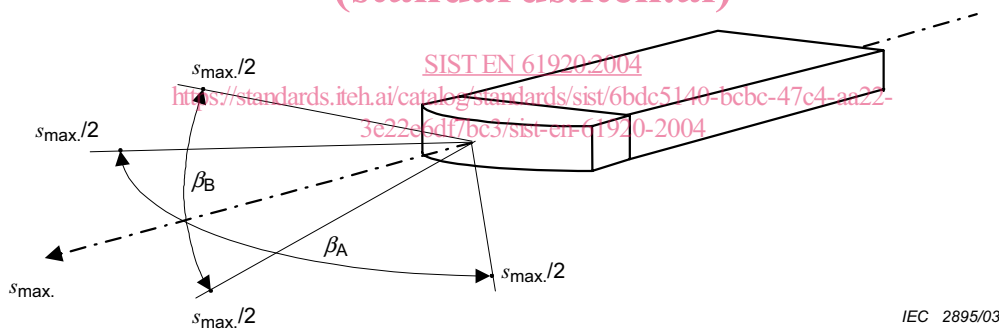


Figure 1 – Directivity and related characteristics

In a sensitivity diagram, the two angles β_A and β_B within which the sensitivity is greater than or equal to half of the maximum sensitivity (see Figure 1) characterize the directivity

[IEC 60747-5-1, 6.3.5.2, modified]

3.3

fluorescent lamp

discharge lamp of the low pressure mercury type in which most of the light is emitted by one or several layers of phosphors excited by the ultraviolet radiation from the discharge

[IEV 845-07-26]

3.4

harmonic

integer multiple of a basic frequency

¹ 'DB' refers to the IEC on-line database.