



# SLOVENSKI STANDARD

## SIST EN 60601-1-6:2010

01-junij-2010

Nadomešča:

SIST EN 60601-1-6:2008

---

**Medicinska električna oprema - 1-6. del: Splošne zahteve za osnovno varnost in bistvene tehnične lastnosti - Spremljevalni standard: Uporabnost (IEC 60601-1-6:2010)**

Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability (IEC 60601-1-6:2010)

Medizinische elektrische Geräte - Teil 1-6: Allgemeine Festlegungen für die Sicherheit einschließlich der wesentlichen Leistungsmerkmale - Ergänzungsnorm: Gebrauchstauglichkeit (IEC 60601-1-6:2010)

Appareils électromédicaux - Partie 1-6: Exigences générales pour la sécurité de base et les performances essentielles - Norme collatérale: Aptitude à l'utilisation (CEI 60601-1-6:2010)

**Ta slovenski standard je istoveten z: EN 60601-1-6:2010**

---

**ICS:**

11.040.01	Medicinska oprema na splošno	Medical equipment in general
-----------	------------------------------	------------------------------

**SIST EN 60601-1-6:2010**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.itih.ai)**  
Full standard:  
<https://standards.itih.ai/catalog/standards/sist/ec21f659-cc1a-459e-8781-a8568fa3e607/sist-en-60601-1-6-2010>

EUROPEAN STANDARD

EN 60601-1-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2010

ICS 11.040

Supersedes EN 60601-1-6:2007

English version

**Medical electrical equipment -  
Part 1-6: General requirements for basic safety  
and essential performance -  
Collateral standard: Usability  
(IEC 60601-1-6:2010)**

Appareils électromédicaux -  
Partie 1-6: Exigences générales  
pour la sécurité de base  
et les performances essentielles -  
Norme collatérale: Aptitude à l'utilisation  
(CEI 60601-1-6:2010)

Medizinische elektrische Geräte -  
Teil 1-6: Allgemeine Festlegungen  
für die Sicherheit einschließlich  
der wesentlichen Leistungsmerkmale -  
Ergänzungsnorm: Gebrauchstauglichkeit  
(IEC 60601-1-6:2010)

This European Standard was approved by CENELEC on 2010-04-01. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

# CENELEC

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

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 62A/682/FDIS, future edition 3 of IEC 60601-1-6, prepared by SC 62A, Common aspects of electrical equipment used in medical practice, of IEC TC 62, Electrical equipment in medical practice, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60601-1-6 on 2010-04-01.

This standard supersedes EN 60601-1-6:2007.

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

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) 2011-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-04-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives 93/42/EEC and 90/385/EEC. See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

## Endorsement notice

The text of the International Standard IEC 60601-1-6:2010 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:

[1] ISO 9241-2:1992	NOTE Harmonized as EN 29241:1993 (not modified).
[2] ISO 9241-11:1998	NOTE Harmonized as EN ISO 9241-11:1998 (not modified).
[3] ISO 9241-20:2008	NOTE Harmonized as EN ISO 9241-20:2009 (not modified).
[4] ISO 9241-110:2006	NOTE Harmonized as EN ISO 9241-110:2006 (not modified).
[5] ISO 9241-171:2008	NOTE Harmonized as EN ISO 9241-171:2008 (not modified).
[7] ISO 9241-300:2008	NOTE Harmonized as EN ISO 9241-300:2008 (not modified).
[8] ISO 9241-302:2008	NOTE Harmonized as EN ISO 9241-302:2008 (not modified).
[9] ISO 9241-303:2008	NOTE Harmonized as EN ISO 9241-303:2008 (not modified).
[10] ISO 9241-304:2008	NOTE Harmonized as EN ISO 9241-304:2008 (not modified).
[11] ISO 9241-305:2008	NOTE Harmonized as EN ISO 9241-305:2008 (not modified).
[12] ISO 9241-307:2008	NOTE Harmonized as EN ISO 9241-307:2008 (not modified).
[13] ISO 9241-400:2007	NOTE Harmonized as EN ISO 9241-400:2007 (not modified).
[14] ISO 9241-410:2008	NOTE Harmonized as EN ISO 9241-410:2008 (not modified).
[16] ISO 13407:1999	NOTE Harmonized as EN ISO 13407:1999 (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 When 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 60601-1	2005	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance	EN 60601-1	2006
IEC 60601-1-8	2006	Medical electrical equipment - Part 1-8: General requirements for basic safety and essential performance - Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems	EN 60601-1-8	2007
IEC 62366	2007	Medical devices - Application of usability engineering to medical devices	EN 62366	2008
ISO 14971	2007	Medical devices - Application of risk management to medical devices	EN ISO 14971	2009

## Annex ZZ (informative)

### Coverage of Essential Requirements of EC Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Annex I of the EC Directive 93/42/EEC as well as Annex I of the EC Directive 90/385/EEC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive(s) concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

**iTeh STANDARD PREVIEW**  
**(standards.itih.ai)**

Full standard:  
<https://standards.itih.ai/catalog/standards/sist/ec21f659-cc1a-459e-8781-a8568fa3e607/sist-en-60601-1-6-2010>



IEC 60601-1-6

Edition 3.0 2010-01

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Medical electrical equipment –  
Part 1-6: General requirements for basic safety and essential performance –  
Collateral standard: Usability**

**Appareils électromédicaux –  
Partie 1-6: Exigences générales pour la sécurité de base et les performances  
essentiels – Norme collatérale: Aptitude à l'utilisation**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

U

ICS 11.040

ISBN 2-8318-1077-4

## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	6
1 Scope, object and related standards.....	7
1.1 * Scope .....	7
1.2 Object .....	7
1.3 Related standards .....	7
1.3.1 IEC 60601-1 .....	7
1.3.2 Particular standards .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 General requirements .....	8
4.1 * Conditions for application to ME EQUIPMENT .....	8
4.2 * USABILITY ENGINEERING PROCESS for ME EQUIPMENT.....	8
5 * Replacement of requirements given in IEC 62366 .....	9
Annex A (informative) General guidance and rationale.....	10
Annex B (informative) Mapping between the elements of IEC 60601-1-6:2006 and the related elements in IEC 62366:2007 .....	12
Annex C (informative) References to items of USABILITY provided in IEC 62366:2007 and their use in other standards.....	19
Bibliography.....	22
Index of defined terms used with this collateral standard .....	24
Table B.1 – Mapping between the elements of IEC 60601-1-6:2006 and the related elements in IEC 62366:2007 .....	12
Table C.1 – References to items of USABILITY in IEC 62366 and their use in other standards.....	19



## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## MEDICAL ELECTRICAL EQUIPMENT –

**Part 1-6: General requirements for basic safety  
and essential performance –  
Collateral standard: Usability**

## 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60601-1-6 has been prepared by subcommittee 62A: Common aspects of electrical equipment used in medical practice, of IEC technical committee 62: Electrical equipment in medical practice.

This third edition constitutes a collateral standard to IEC 60601-1: *Medical electrical equipment – Part 1: General requirements for basic safety and essential performance* hereafter referred to as the general standard.

This document cancels and replaces the second edition of IEC 60601-1-6 which has been technically revised. To allow for equipment manufacturers and testing organizations to make products and to equip themselves for conducting revised tests in accordance with this third edition, it is recommended by SC 62A that the content of this document not be adopted for mandatory implementation earlier than 3 years from the date of publication for equipment newly designed and not earlier than 5 years from the date of publication for equipment already in production.

This edition of IEC 60601-1-6 was revised to align with the USABILITY ENGINEERING PROCESS in IEC 62366.

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

FDIS	Report on voting
62A/682/FDIS	62A/689/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.

In the IEC 60601 series of publications, collateral standards specify general requirements for safety applicable to:

- a subgroup of MEDICAL ELECTRICAL EQUIPMENT (e.g. radiological equipment); or
- a specific characteristic of all MEDICAL ELECTRICAL EQUIPMENT, not fully addressed in the general standard (e.g. alarm systems).

In this collateral standard, the following print types are used:

- Requirements and definitions: roman type.
- *Test specifications or instructions to modify requirements in IEC 62366: italic type.*
- Informative material appearing outside of tables, such as notes, examples and references: in smaller type. Normative text of tables is also in a smaller type.
- TERMS DEFINED IN CLAUSE 3 OF THE GENERAL STANDARD, IN THIS COLLATERAL STANDARD OR AS NOTED: SMALL CAPITALS.

In referring to the structure of this standard, the term

- “clause” means one of the numbered divisions within the table of contents, inclusive of all subdivisions (e.g. Clause 4 includes subclauses 4.1, 4.2, etc.);
- “subclause” means a numbered subdivision of a clause (e.g. 4.1 and 4.2 are all subclauses of Clause 4).

References to clauses within this standard are preceded by the term “Clause” followed by the clause number. References to subclauses within this standard are by number only.

In this standard, the conjunctive “or” is used as an “inclusive or” so a statement is true if any combination of the conditions is true.

The verbal forms used in this standard conform to usage described in Annex H of the ISO/IEC Directives, Part 2. For the purposes of this standard, the auxiliary verb:

- “shall” means that compliance with a requirement or a test is mandatory for compliance with this standard;
- “should” means that compliance with a requirement or a test is recommended but is not mandatory for compliance with this standard;
- “may” is used to describe a permissible way to achieve compliance with a requirement or test.

Clauses, subclauses and definitions for which a rationale is provided in informative Annex A are marked with an asterisk (\*).

60601-1-6 © IEC:2010

– 5 –

To assist the user of this collateral standard in migrating from IEC 60601-1-6:2006 to IEC 62366:2007, Table B.1 has been developed. This table maps the clauses and subclause of IEC 60601-1-6:2006 to the comparable clauses and subclauses in IEC 62366:2007. To further assist the user of this collateral standard, Table C.1 relates certain elements of IEC 62366 to other standards, such as parts of the ISO 9241 series, which might be useful in meeting the requirements of IEC 62366.

A list of all parts of the IEC 60601 series, under the general title: *Medical electrical equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/ec21f659-cc1a-459e-8781-a8568fa3e607/sist-en-60601-1-6-2010>