R ntgenitorukoostete p sifiltratsiooni kindlaksm ramine

Determination of the permanent filtration of X-ray tube assemblies

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESS NA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60522:2002 sisaldab Euroopa standardi EN 60522:1999 ingliskeelset teksti.	This Estonian standard EVS-EN 60522:2002 consists of the English text of the European standard EN 60522:1999.
Standard on kinnitatud Eesti Standardikeskuse 18.12.2002 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 18.12.2002 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 11.040.50

62B

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60522

April 1999

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English version

Determination of the permanent filtration of X-ray tube assemblies
(IEC 60522:1999)

Détermination de la filtration permanente des gaines équipées
(CEI 60522:1999)

Ermittlung der Eigenfilterung von Röntgenstrahlern
(IEC 60522:1999)

This European Standard was approved by CENELEC on 1999-04-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

Ref. No. EN 60522:1999 E

Foreword

The text of document 62B/359/FDIS, future edition 2 of IEC 60522, prepared by SC 62B, Diagnostic imaging equipment, of IEC TC 62, Electrical equipment in medical practice, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60522 on 1999-04-01.

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) 2000-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-04-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A and ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60522:1999 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

Publication	Year	Title	EN/HD	Year
IEC 60601-1	1988	Medical electrical equipment Part 1: General requirements for safety	EN 60601-1 + corr. July	1990 1994
A1	1991		A1 + corr. July	1993 1994
A2 + corr. June	1995 1995		A2 A13	1995 1996
IEC 60601-1-3	1994	Medical electrical equipment Part 1: General requirements for safety 3. Collateral standard: General requirements for radiation protection in diagnostic X-ray equipment	EN 60601-1-3	1994
IEC 60788	1984	Medical radiology - Terminology	HD 501 S1	1988
ISO 2092	1981	Light metals and their alloys - Code of designation based on chemical symbols	-	-

INTERNATIONAL STANDARD

IEC 60522

Second edition
1999-02

Determination of the permanent filtration of X-ray tube assemblies

Détermination de la filtration permanente des gaines équipées

Reference number
IEC 60522:1999(E)

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site***
- **Catalogue of IEC publications**
  Published yearly with regular updates
  (On-line catalogue)*
- **IEC Bulletin**
  Available both at the IEC web site* and as a printed periodical

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams.*

* See web site address on title page.

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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DETERMINATION OF THE PERMANENT FILTRATION OF X-RAY TUBE ASSEMBLIES

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60522 has been prepared by subcommittee 62B: Diagnostic imaging equipment, of IEC technical committee 62: Electrical equipment in medical practice.

This second edition cancels and replaces the first edition published in 1976 and constitutes a technical revision.

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

FDIS	Report of voting
62B/359/FDIS	62B/363/RVD

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

Annex A forms an integral part of this standard.

In this standard, the following print types are used:

– requirements, compliance with which can be tested and definitions: roman type;

– explanations, advice, notes, general statements, exceptions and references: smaller type;

– *test specifications and headings of subclauses: italic type;*

– TERMS DEFINED IN CLAUSE 3 OF THIS STANDARD, IN CLAUSE 2 OF IEC 60601-1, IN IEC 60788 OR IN ANNEX A: SMALL CAPITALS.

NOTE – Attention is drawn to the existence, in some countries, of legislation concerning RADIATION safety which may not align with the provisions of this standard.

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

DETERMINATION OF THE PERMANENT FILTRATION OF X-RAY TUBE ASSEMBLIES

1 Scope and object

1.1 Scope

This International Standard applies to X-RAY TUBE ASSEMBLIES for medical diagnosis and RADIOTHERAPY.

1.2 Object

This standard defines the concept of PERMANENT FILTRATION in X-RAY TUBE ASSEMBLIES for medical diagnosis and RADIOTHERAPY and describes a method for its determination. It contains requirements for statements of compliance for ACCOMPANYING DOCUMENTS and for markings on X-RAY TUBE ASSEMBLIES.

Methods are given to determine the PERMANENT FILTRATION in an X-RAY TUBE ASSEMBLY with an accuracy that is sufficient to enable the appropriate ADDITIONAL FILTRATION to be provided in order to attain the desired TOTAL FILTRATION.

NOTE 1 – This standard does not contain requirements for any specific values of PERMANENT FILTRATION or TOTAL FILTRATION to be provided. For X-RAY TUBE ASSEMBLIES and X-RAY EQUIPMENT used for diagnostic purposes, appropriate requirements are given in IEC 60601-1-3.

NOTE 2 – The method of determination described in this standard is suitable as a type test. It is not intended as a test to be applied by the USER.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60601-1:1988, *Medical electrical equipment – Part 1: General requirements for safety*
Amendment No. 1 (1991)
Amendment No. 2 (1995)

IEC 60601-1-3:1994, *Medical electrical equipment – Part 1: General requirements for safety – 3. Collateral Standard: General requirements for radiation protection in diagnostic X-ray equipment*

IEC 60788:1984, *Medical radiology – Terminology*

ISO 2092:1981, *Light metals and their alloys – Code of designation based on chemical symbols*