SLOVENSKI STANDARD
SIST EN 61005:2017

01-april-2017

Nadomešča:
SIST EN 61005:2005

Oprema za zaščito pred sevanjem - Merilniki ekvivalentne doze v prostoru za nevtronsko sevanje (IEC 61005:2014)

Radiation protection instrumentation - Neutron ambient dose equivalent (rate) meters (IEC 61005:2014)

Strahlenschutz-Messgeräte - Umgebungsäquivalentdosis(leistungs)-Messgeräte für Neutronenstrahlung (IEC 61005:2014)

Instrumentation pour la radioprotection - Appareils de mesure de l'équivalent de dose ambiant neutron (ou de son débit d'équivalent de dose) (IEC 61005:2014)

Ta slovenski standard je istoveten z: **EN 61005:2017**

ICS:

13.280	Varstvo pred sevanjem	Radiation protection
17.240	Merjenje sevanja	Radiation measurements

SIST EN 61005:2017 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61005

January 2017

ICS 13.280

Supersedes EN 61005:2004

English Version

Radiation protection instrumentation - Neutron ambient dose equivalent (rate) meters (IEC 61005:2014 , modified)

Instrumentation pour la radioprotection - Appareils de mesure de l'équivalent de dose ambiant neutron (ou de son débit d'équivalent de dose) (IEC 61005:2014 , modifiée)

Strahlenschutz-Messgeräte - Umgebungsäquivalentdosis(leistungs)-Messgeräte für Neutronenstrahlung (IEC 61005:2014 , modifiziert)

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN 61005:2017) consists of the text of IEC 61005:2014 prepared by SC 45B “Radiation protection instrumentation” of IEC/TC 45 “Nuclear instrumentation”, together with the common modifications prepared by CLC/TC 45B "Radiation protection instrumentation".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-11-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-11-14

This document supersedes EN 61005:2004.

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Endorsement notice

The text of the International Standard IEC 61005:2014 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

1 Scope

In the note, **replace** “realistic field” with “workplace field” twice.

3 Terms and definitions, abbreviations and symbols, quantities and units

3.1 Terms and definitions

3.1.17
minimal rated range of use

Replace “minimal” with “minimum” (in the term an in the note).

6 Radiation detection requirements

6.4 Variation of the response due to neutron energy

6.4.2 Requirements

In the first paragraph, **delete** “at least” twice.

And, **add** a dot above the H in the second term $r_{H^*(10)}$.

6.4.3 Test method

In the second paragraph, **add** at the end of item b) “(one of them 144 keV)”.

And in item c), **replace** “one broad source (e.g. ^{252}Cf or ^{241}Am-Be)” with “two broad sources (D_2O-moderated ^{252}Cf and e.g. ^{252}Cf or ^{241}Am-Be)”.

Replace the fourth paragraph starting with “The test distance should be at least 3 times …” with “The test distance should be at least 3 times the sum of the largest linear dimension of the source and the detector. In case of neutron fields according to ISO 8529, the scatter contribution to the indicated value shall be determined in compliance with ISO 8529-2 and the indicated value shall be corrected for scattered neutrons.”

In the note, **replace** “realistic work place” with “workplace”.

6.6 Variation of the response due to angle of incidence

6.6.3 Test method

Replace the fourth and fifth sentence starting with “The scatter contribution to the indicated value …” with “In case of neutron fields according to ISO 8529, the scatter contribution to the indicated value shall be determined in compliance with ISO 8529-2 and the indicated value shall be corrected for scattered neutrons.”

6.13 Response to other external ionizing radiations

Replace the paragraph by “If the detector’s cover does not shield alpha and beta radiation, the response due to alpha and beta radiation should be measured – and the results should be documented.”

7 Additivity of indicated value

7.2 Test method

Replace the equation with $\Delta H_{\text{imix}} = \dfrac{H_{\text{iK}} + H_{\text{iL}} - H_{\text{i(K+L)}}}{H_{\text{i(K+L)}}}$

9 Electrical characteristics

9.3 Power supplies – battery operation

9.3.3 Test method

9.3.3.3 Test using power supply

9.3.3.3.3 Interpretation of the results

Replace “0,91” with “0,9”.

Table 1 – Reference conditions and standard test conditions

In the first line (Reference neutron radiation), **replace** “L(p,n)” with “Li(p,n)” twice.

Table 2 – Radiation characteristics of ambient neutron dose (rate) equivalent meters

In the fourth line (Overload), **replace** “until unit is reset or switched off” with “until unit is reset or is switched off”.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60050	Series	International Electrotechnical Vocabulary	-	-
IEC 60086-1	2011	Primary batteries - Part 1: General	EN 60086-1	2011 [1)]
IEC 60086-2	2011	Primary batteries - Part 2: Physical and electrical specifications	EN 60086-2	2011 [2)]
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 61187	-	Electrical and electronic measuring equipment - Documentation	EN 61187	-
IEC 62706	-	Radiation protection instrumentation - Environmental, electromagnetic and mechanical performance requirements	-	-
ISO 8529-1	2001	Reference neutron radiations - Part 1: Characteristics and methods of production	-	-
ISO 8529-2	2000	Reference neutron radiations - Part 2: Calibration fundamentals of radiation protection devices related to the basic quantities characterizing the radiation field	-	-
ISO 8529-3	1998	Reference neutron radiations - Part 3: Calibration of area and personal dosimeters and determination of response as a function of energy and angle of incidence	-	-

[1)] Superseded by EN 60086-1:2015 (IEC 60086-1:2015): DOW=2018-09-01.
[2)] Superseded by EN 60086-2:2016 (IEC 60086-2:2015): DOW=2018-12-03.

Publication	Year	Title	EN/HD	Year
ISO 11929	2010	Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionizing radiation - Fundamentals and application	-	-
ISO 12789-1	2008	Reference radiation fields - Simulated workplace neutron fields - Part 1: Characteristics and methods of production	-	-
ISO 12789-2	2008	Reference radiation fields - Simulated workplace neutron fields - Part 2: Calibration fundamentals related to the basic quantities	-	-

IEC 61005

Edition 3.0 2014-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Radiation protection instrumentation – Neutron ambient dose equivalent (rate) meters

Instrumentation pour la radioprotection – Appareils de mesure de l'équivalent de dose ambiant neutron (ou de son débit d'équivalent de dose)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RADIATION PROTECTION INSTRUMENTATION – NEUTRON AMBIENT DOSE EQUIVALENT (RATE) METERS

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 61005 has been prepared by subcommittee 45B: Radiation protection instrumentation, of IEC technical committee 45: Nuclear instrumentation.

This third edition cancels and replaces the second edition of IEC 61005 issued in 2003 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) upper neutron energy of the instruments covered by the standard is increased to 20 MeV;
b) requirement for the variation of the relative response due to neutron energy is modified;
c) a clause for additivity of the indicated value (neutron dose/dose rate) is introduced;
d) a clause and requirement for Monte Carlo calculation of the instrument response are introduced;
e) a clause and requirement for the software for generation of the measured values are introduced;
f) environmental testing methods and requirements are referred to IEC 62706;

g) influence quantities of type S and F are introduced.

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

FDIS	Report on voting
45B/792/FDIS	45B/797/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 the stability 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.