SLOVENSKI STANDARD
SIST EN IEC 62465:2019

01-september-2019

Jedrske elektrarne - Merilna in nadzorna oprema za zagotavljanje varnosti - Upravljanje staranja električnih kablov (IEC 62465:2010)

Nuclear power plants - Instrumentation and control important to safety - Management of ageing of electrical cabling systems (IEC 62465:2010)

Kernkraftwerke - Leittechnische Systeme mit sicherheitstechnischer Bedeutung - Alterungsmanagement von elektrischen Kabeln (IEC 62465:2010)

Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Gestion du vieillissement des systèmes de câbles électriques (IEC 62465:2010)

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27.120.20	Jedrske elektrarne. Varnost	Nuclear power plants. Safety
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English Version

Nuclear power plants - Instrumentation and control important to safety - Management of ageing of electrical cabling systems (IEC 62465:2010)

Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Gestion du vieillissement des systèmes de câbles électriques (IEC 62465:2010)

Kernkraftwerke - Leittechnische Systeme mit sicherheitstechnischer Bedeutung - Alterungsmanagement von elektrischen Kabeln (IEC 62465:2010)

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

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European foreword

This document (EN IEC 62465:2019) consists of the text of IEC 62465:2010 prepared by IEC/SC 45A: "Instrumentation, control and electrical power systems of nuclear facilities", of IEC/TC 45: "Nuclear instrumentation".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2020-06-17
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-06-17

As stated in the nuclear safety directive 2009/71/EURATOM, Chapter 1, Article 2, item 2, Member States are not prevented from taking more stringent safety measures in the subject-matter covered by the Directive, in compliance with Community law. In a similar manner, this European standard does not prevent Member States from taking more stringent nuclear safety and/or security measures in the subject-matter covered by this standard.

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Endorsement notice

The text of the International Standard IEC 62465:2010 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 60780[1]	-	Nuclear power plants - Electrical equipment of the safety system - Qualification	-	-
IEC 62342	-	Nuclear power plants - Instrumentation and control systems important to safety - Management of ageing	-	-
IEC 62385	-	Nuclear power plants - Instrumentation and control important to safety - Methods for assessing the performance of safety system instrument channels	-	-
IEC/TR 62096	-	Nuclear power plants - Instrumentation and control - Guidance for the decision on modernization	-	-
IEC/TR 62392	-	Suitability of typical electrical insulating material (EIM) for polymer recycling	-	-

[1] IEC 60780:1998 is superseded by IEC/IEEE 60780-323:2016, which is endorsed as EN 60780-323:2017.

IEC 62465

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Nuclear power plants – Instrumentation and control important to safety – Management of ageing of electrical cabling systems

Centrales nucléaires de puissance – Instrumentation et contrôle-commande importants pour la sûreté – Gestion du vieillissement des systèmes de câbles électriques

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

NUCLEAR POWER PLANTS – INSTRUMENTATION AND CONTROL IMPORTANT TO SAFETY – MANAGEMENT OF AGEING OF ELECTRICAL CABLING SYSTEMS

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 62465 has been prepared by subcommittee 45A: Instrumentation and control of nuclear facilities, of IEC technical committee 45: Nuclear instrumentation.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
45A/795/FDIS	45A/803/RVD

Full information on the voting for the approval of this International 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

a) Technical background, main issues and organisation of the Standard

With the majority of nuclear power plants over 20 years old, the management of ageing of instrumentation and associated electrical cabling systems is currently a relevant topic, especially for those plants that have extended their operating licenses or are considering this option. This International Standard is intended to be used by operators of nuclear power plants (utilities), systems evaluators, and by licensors.

b) Situation of the current Standard in the structure of the IEC SC 45A standard series

IEC 62465 is the third level IEC SC 45A document tackling the specific issue of management of ageing of electrical cabling systems in nuclear power plants for Instrumentation and Control (I&C) systems important to safety.

IEC 62342 is the second level chapeau standard of SC 45A covering the domain of the management of ageing of nuclear instrumentation systems used in nuclear power plants to perform functions important to safety. IEC 62342 is the introduction to a series of standards to be developed by IEC SC 45A covering the management of ageing of specific I&C systems or components such as electrical cabling systems (IEC 62465), sensors, and transmitters.

IEC 62465 is to be read in association with IEC 62342 and IEC 62096, which is the appropriate IEC SC 45A Technical Report that provides guidance on the decision for modernization when management of ageing techniques are no longer successful.

For more details on the structure of the IEC SC 45A standard series, see item d) of this introduction.

c) Recommendations and limitations regarding the application of this Standard

It is important to note that this International Standard establishes no additional functional requirements for safety systems. Ageing mechanisms have to be prevented and thus detected by performance measurements. Aspects for which special recommendations have been provided in this International Standard are:

- criteria for evaluation of ageing of electrical cabling systems in nuclear power plants;
- steps to be followed to establish cable testing requirements for an ageing management program for nuclear power plant electrical cabling systems; and
- relationship between on-going qualification analysis and ageing management programs with regards to electrical cabling systems.

It is recognized that testing and monitoring techniques used to evaluate the ageing condition of nuclear power plants' electrical cabling systems are continuing to develop at a rapid pace and that it is not possible for a standard such as IEC 62465 to include references to all modern technologies and techniques. However, a number of techniques have been mentioned within this International Standard and are described in Annexes B, C and D.

To ensure that this International Standard will continue to be relevant in future years, the emphasis has been placed on issues of principle, rather than specific technologies.