



**SLOVENSKI STANDARD**  
**oSIST prEN IEC/IEEE 62582-6:2021**  
**01-maj-2021**

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**Jedrske elektrarne - Merilna in nadzorna oprema za zagotavljanje varnosti - Metode za spremljanje stanja električne opreme - 6. del: Izolacijska upornost**

Nuclear power plants - Instrumentation and control important to safety - Electrical equipment condition monitoring methods - Part 6: Insulation resistance

Kernkraftwerke - Leittechnik mit sicherheitstechnischer Bedeutung - Zustandsüberwachung elektrischer Geräte - Teil 6: Isolationswiderstand

Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Méthodes de surveillance de l'état des matériels électriques - Partie 6: Résistance d'isolement

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**Ta slovenski standard je istoveten z: prEN IEC/IEEE 62582-6:2021**

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**ICS:**

27.120.20 Jedrske elektrarne. Varnost Nuclear power plants. Safety

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN IEC/IEEE 62582-6**

March 2021

ICS 27.120.20

English Version

**Nuclear power plants - Instrumentation and control important to safety - Electrical equipment condition monitoring methods - Part 6: Insulation resistance (IEC/IEEE 62582-6:2019)**

Centrales nucléaires de puissance - Instrumentation et contrôle-commande importants pour la sûreté - Méthodes de surveillance de l'état des matériels électriques - Partie 6: Résistance d'isolement (IEC/IEEE 62582-6:2019)

Kernkraftwerke - Leittechnik mit sicherheitstechnischer Bedeutung - Zustandsüberwachung elektrischer Geräte - Teil 6: Isolationswiderstand (IEC/IEEE 62582-6:2019)

This draft European Standard is submitted to CENELEC members for enquiry.  
Deadline for CENELEC: 2021-05-28.

The text of this draft consists of the text of IEC/IEEE 62582-6:2019.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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Project: 73225

Ref. No. prEN IEC/IEEE 62582-6:2021 E

**prEN IEC/IEEE 62582-6:2021 (E)****European foreword**

This document (prEN IEC/IEEE 62582-6:2021) consists of the text of document IEC/IEEE 62582-6:2019, prepared by IEC/TC 45 "Instrumentation, control and electrical power systems of nuclear facilities"

This document is currently submitted to the CENELEC Enquiry.

The following dates are proposed:

- latest date by which the existence of this document (doa) dor + 6 months  
has to be announced at national level
- latest date by which this document has to be (dop) dor + 12 months  
implemented at national level by publication of an  
identical national standard or by endorsement
- latest date by which the national standards (dow) dor + 36 months  
conflicting with this document have to be withdrawn (to be confirmed or  
modified when voting)

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.

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

IEC 62631-3-3	NOTE	Harmonized as EN 62631-3-3
IEC/IEEE 60780-323	NOTE	Harmonized as EN 60780-323

**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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
JCGM 100	2008	Evaluation of measurement data - Guide to the expression of uncertainty in measurement		-

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IEC/IEEE 62582-6

Edition 1.0 2019-10

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Nuclear power plants – Instrumentation and control important to safety –  
Electrical equipment condition monitoring methods –  
Part 6: Insulation resistance**

**Centrales nucléaires de puissance – Instrumentation et contrôle-commande  
importants pour la sûreté – Méthodes de surveillance de l'état des matériels  
électriques –  
Partie 6: Résistance d'isolement**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 27.120.20

ISBN 978-2-8322-7050-9

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# NUCLEAR POWER PLANTS – INSTRUMENTATION AND CONTROL IMPORTANT TO SAFETY – ELECTRICAL EQUIPMENT CONDITION MONITORING METHODS –

## Part 6: Insulation resistance

### 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.  
  
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International Standard IEC/IEEE 62582-6 has been prepared by subcommittee 45A: Instrumentation, control and electrical power systems of nuclear facilities, of IEC technical committee 45: Nuclear instrumentation, in cooperation with the Nuclear Power Engineering Committee of the Power & Energy Society of the IEEE<sup>1</sup>, under the IEC/IEEE Dual Logo Agreement.

It is published as an IEC/IEEE dual logo standard.

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

FDIS	Report on voting
45A/1267/FDIS	45A/1277/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.

A list of all parts in the IEC/IEEE 62582 series, published under the general title *Nuclear power plants – Instrumentation and control important to safety – Electrical equipment condition monitoring methods*, can be found on the IEC website.

International standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The IEC Technical Committee and IEEE Technical Committee have 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

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<sup>1</sup> A list of IEEE participants can be found at the following URL: <https://iee-SA.imeetcentral.com/p/eAAAAAAQbmGAAAAAct2TZA>

## INTRODUCTION

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

This IEC/IEEE standard specifically focuses on insulation resistance measurement methods for monitoring of the dielectric condition of instrumentation and control cables during simulation of design basis events.

This IEC/IEEE standard is the sixth part of the IEC/IEEE 62582-series. It contains detailed descriptions of condition monitoring based on insulation resistance measurements.

The IEC/IEEE 62582-series of standards is issued with a joint logo which makes it applicable to management of ageing of electrical equipment qualified to IEEE as well as IEC Standards.

For aged cables and accessories, the dielectric behaviour during simulated accident conditions generally indicates the condition of the cable during the simulated accident condition.

Significant research has been performed on condition monitoring techniques and the use of these techniques in equipment qualification as noted in NUREG/CR-6704, vol.2 (BNL-NUREG-52610) and JNES-SS-0903, 2009.

It is intended that this Standard be used by test laboratories, operators of nuclear power plants, systems evaluators and licensors.

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

IEC/IEEE 62582-6 is the third level IEC SC 45A document tackling the specific issue of application and performance of insulation resistance measurements during simulated accident conditions in nuclear power plants.

IEC/IEEE 62582-6 is to be read in association with IEC/IEEE 62582-1. IEC/IEEE 62582-1 provides requirements for application of methods for condition monitoring of electrical equipment important to safety of nuclear power plants.

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 the Standard

It is important to note that this Standard establishes no additional functional requirements for safety systems.

### d) Description of the structure of the IEC SC 45A standard series and relationships with other IEC documents and other bodies documents (IAEA, ISO)

The top-level documents of the IEC SC 45A standard series are IEC 61513 and IEC 63046. IEC 61513 provides general requirements for I&C systems and equipment that are used to perform functions important to safety in NPPs. IEC 63046 provides general requirements for electrical power systems of NPPs; it covers power supply systems including the supply systems of the I&C systems. IEC 61513 and IEC 63046 are to be considered in conjunction and at the same level. IEC 61513 and IEC 63046 structure the IEC SC 45A standard series and shape a complete framework establishing general requirements for instrumentation, control and electrical systems for nuclear power plants.

IEC 61513 and IEC 63046 refer directly to other IEC SC 45A standards for general topics related to categorization of functions and classification of systems, qualification, separation,