SLOVENSKI STANDARD
SIST EN 60965:2011

01-oktober-2011

Jedrske elektrarne - Nadzorne sobe - Dodatne nadzorne točke za prekinitev obratovanja reaktorja brez dostopa do glavne nadzorne sobe

Nuclear power plants - Control rooms - Supplementary control points for reactor shutdown without access to the main control room

Kernkraftwerke - Warten - Notsteuerstellen für das Abfahren des Reaktors ohne Verbindung zur Hauptwarte

Centrales nucléaires de puissance - Salles de commande - Points de commande supplémentaires pour l'arrêt des réacteurs sans accès à la salle de commande principale (salle de commande de repli)

Ta slovenski standard je istoveten z: **EN 60965:2011**

ICS:

27.120.20 Jedrske elektrarne. Varnost Nuclear power plants. Safety

SIST EN 60965:2011 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60965

August 2011

ICS 27.120.20

English version

Nuclear power plants - Control rooms - Supplementary control points for reactor shutdown without access to the main control room

(IEC 60965:2009)

Centrales nucléaires de puissance - Salles de commande - Points de commande supplémentaires pour l'arrêt des réacteurs sans accès à la salle de commande principale (salle de commande de repli) (CEI 60965:2009)

Kernkraftwerke - Warten - Notsteuerstellen für das Abfahren des Reaktors ohne Verbindung zur Hauptwarte (IEC 60965:2009)

This European Standard was approved by CENELEC on 2011-08-08. 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of the International Standard IEC 60965:2009, prepared by SC 45A, Instrumentation and control of nuclear facilities, of IEC TC 45, Nuclear instrumentation, was submitted to the formal vote and was approved by CENELEC as EN 60965 on 2011-08-08 without any modification.

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)	2012-08-08
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-08-08

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 measures in the subject-matter covered by this standard.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60965:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

ISO 11064 series NOTE Harmonized as EN ISO 11064 series (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.

Publication	Year	Title	EN/HD	Year
IEC 60709	-	Nuclear power plants - Instrumentation and control systems important to safety - Separation	EN 60709	-
IEC 60964	-	Nuclear power plants - Control rooms - Design	EN 60964	-
IEC 61226	-	Nuclear power plants - Instrumentation and control important to safety - Classification of instrumentation and control functions	EN 61226	-
IEC 61513	-	Nuclear power plants - Instrumentation and control for systems important to safety - General requirements for systems	-	-
IEC 61771	-	Nuclear power plants - Main control-room - Verification and validation of design	-	-
IAEA NS-R-1	2000	Safety of nuclear power plants: Design	-	-
IAEA Safety guide NS-G-1.3	2002	Instrumentation and control systems important to safety in nuclear power plants	-	-

IEC 60965

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Nuclear power plants – Control rooms – Supplementary control points for reactor shutdown without access to the main control room

Centrales nucléaires de puissance – Salles de commande – Points de commande supplémentaires pour l'arrêt des réacteurs sans accès à la salle de commande principale (salle de commande de repli)

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

NUCLEAR POWER PLANTS – CONTROL ROOMS – SUPPLEMENTARY CONTROL POINTS FOR REACTOR SHUTDOWN WITHOUT ACCESS TO THE MAIN CONTROL ROOM

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 60965 has been prepared by subcommittee 45A: Instrumentation and control of nuclear facilities, of IEC technical committee 45: Nuclear instrumentation.

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

FDIS	Report on voting
45A/749/FDIS	45A/769/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 second edition cancels and replaces the first edition published in 1989. This edition constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

- to clarify the definitions and review the requirements.
- to update the reference to new standards published since the first issue, including IEC 61227, IEC 61771, IEC 61772, IEC 61839, and IEC 62241.
- to align the Standard with the new revisions of IAEA documents NS-R-1 and NS-G-1.3.

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 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.

INTRODUCTION

a) Technical background, main issues and organization of the standard

IEC 60965:1989 was developed to provide requirements relevant to the design of NPP supplementary control points for reactor shutdown without access to the main control room. The first edition of IEC 60965 has been used extensively within the nuclear industry. It was however recognized that recent technical developments especially those which are based on software technology should be incorporated. It was also recognized that the relationships with the standard for the main control room (i.e. IEC 60964) and the derivative standards to that standard (i.e. IEC 61227, IEC 61771, IEC 61772, IEC 61839, and IEC 62241) should be clarified and conditioned.

This IEC standard specifically focuses on the functional design process of the supplementary control points of an NPP. It is intended that the standard is used by NPP designers, design authorities, vendors, utilities, and by licensors.

At the end of the current revision, at the FDIS stage, two further points were identified. These are: (a) requirements should be included associated with regular testing of the SCP, and (b) a theoretical assessment is needed of the time available during which the reactor will be safe but unattended, in order to move from the MCR to the SCP and for the SCP to become operational. However, since these points were not raised formally by any National Committee, they are recorded in this introduction for development in the next revision.

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

IEC 60965 is the third level IEC SC 45A document tackling the issue of the design of supplementary control points.

IEC 60965 is to be read in association with IEC 60964 for the design of the main control room (including the derivative standards mentioned above) which is the appropriate IEC SC 45A document providing guidance on operator controls, verification and validation of design, application of visual display units, functional analysis and assignment, and alarm functions and presentation.

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

The purpose of this standard is to provide functional design requirements to be used in the design of the supplementary control points of a nuclear power plant to meet safety requirements.

This standard is intended for application to supplementary control points whose conceptual design is initiated after the publication of this standard. The recommendations of the standard may be used for refits, upgrades and modifications.

Aspects for which special recommendations have been provided in this Standard, in accordance with Clauses 6.15 to 6.30 of IAEA NS-G-1.3, are:

- The definition of the MCR and plant design bases for which the supplementary control points are to be used.
- Access by station staff to the supplementary control points in such emergencies.
- Assurance for the station staff that the environment at the supplementary control points is safe when they are to be used.