Irish Standard
I.S. EN 62598:2013

Nuclear instrumentation - Constructional requirements and classification of radiometric gauges (IEC 62598:2011 (EQV))

I.S. EN 62598:2013

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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English version

Nuclear instrumentation - Constructional requirements and classification of radiometric gauges

(IEC 62598:2011)

Instrumentation nucléaire - Exigences de construction et classification pour les jauges radiométriques (CEI 62598:2011)

Strahlungsmessgeräte - Konstruktionsanforderungen und Klassifikation radiometrischer Messanordnungen (IEC 62598:2011)

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CENELEC

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

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Ref. No. EN 62598:2013 E

Foreword

This document (EN 62598:2013) consists of the text of IEC 62598:2011 prepared by IEC/TC 45 "Nuclear 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)	2014-07-22
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-07-22

This document supersedes EN 60405:2007.

EN 62598:2013 includes the following significant technical changes with respect to EN 60405:2007:

– Introduction of Category C for stand-alone source housings intended for fixed radiometric gauges and associated test procedures.

– The system classification code has been amended by one digit indicating the applied revision of EN 62598 and by a second digit indicating the fire test conditions.

– The term dose rate class shall be used instead of radiation protection class. Class 7, or alternatively E, represents the current ICRP regulations.

– Introduction of fire resistance classes.

– Revision of the procedure for dose equivalent measurements.

– Addition of Annex A (informative) "Guidelines for the installation of radiometric gauges".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62598:2011 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, 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 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 60050-394	2007	International Electrotechnical Vocabulary - Part 394: Nuclear instrumentation - Instruments, systems, equipment and detectors	-	-
IEC 60476	1993	Nuclear instrumentation - Electrical measuring systems and instruments utilizing ionizing radiation sources - General aspects	-	-
IEC 60692	1999	Nuclear instrumentation - Density gauges utilizing ionizing radiation - Definitions and test methods	-	-
IEC 60846-1	2009	Radiation protection instrumentation - Ambient- and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation - Part 1: Portable workplace and environmental meters and monitors		-
IEC 60846-2	2007	Radiation protection instrumentation - Ambient- and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation - Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes		-
IEC 60982	1989	Level measuring systems utilizing ionizing radiation with continuous or switching output	-	-
IEC 61005 (mod)	2003	Radiation protection instrumentation - Neutron ambient dose equivalent (rate) meters	EN 61005	2004
IEC 61010-1 + corr. May	2010 2011	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61326	Series	Electrical equipment for measurement, control and laboratory use - EMC requirements	EN 61326	Series
IEC 61336	1996	Nuclear instrumentation - Thickness measurement systems utilizing ionizing radiation - Definitions and tests methods	-	-
ISO 361	1975	Basic ionizing radiation symbol	-	-
ISO 921	1997	Nuclear energy - Vocabulary	-	-

Publication	Year	Title	EN/HD	Year
ISO 2919	1999	Radiation protection - Sealed radioactive sources - General requirements and classification	-	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

NUCLEAR INSTRUMENTATION – CONSTRUCTIONAL REQUIREMENTS AND CLASSIFICATION OF RADIOMETRIC GAUGES

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 62598 has been prepared by IEC technical committee 45: Nuclear instrumentation.

This standard cancels and replaces the second edition of IEC 60405, issued in 2003. It constitutes a technical revision (see Introduction).

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

FDIS	Report on voting
45/718/FDIS	45/721/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.

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

INTRODUCTION

This International Standard is based on the second edition of IEC 60405 which was published in 2003. It modifies or supplements it with additional provisions, where required by current needs.

Compared to the second edition of IEC 60405, the following major changes have been made:

– Introduction of Category C for stand alone source housings intended for fixed radiometric gauges and associated test procedures.

– The system classification code has been amended by one digit indicating the applied revision of IEC 62598 and by a second digit indicating the fire test conditions.

– The term dose rate class shall be used instead of radiation protection class. Class 7, or alternatively E, represents the current ICRP regulations.

– Introduction of fire resistance classes.

– Revision of the procedure for dose equivalent measurements.

– Addition of Annex A (informative) "Guidelines for the installation of radiometric gauges".

NUCLEAR INSTRUMENTATION – CONSTRUCTIONAL REQUIREMENTS AND CLASSIFICATION OF RADIOMETRIC GAUGES

1 Scope and object

This International Standard applies to the manufacture and installation of electrical measuring systems and instruments utilizing radioactive sources (radiometric gauges, hereinafter called gauges). It also applies to source housings intended for use in the aforementioned measuring systems. This standard applies to equipment, which is not related to power production or to the fuel cycle.

It does not apply to portable gauges which, because of their construction and purposes for use, are intended to be operated as mobile equipment and it does not apply to gauges operated with X-ray tubes, but it can be analogously applicable to these gauges.

The object of this standard is to specify constructional requirements for the design of instruments utilizing radioactive sources in regard of radiation protection. This standard does not take into account mechanical or electrical hazards.

2 Normative references

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.

IEC 60050-394:2007, *International Electrotechnical Vocabulary (IEV) – Part 394: Nuclear instrumentation – Instruments, systems, equipment and detectors*

IEC 60476:1993, *Nuclear instrumentation – Electrical measuring systems and instruments utilizing ionizing radiation sources – General aspects*

IEC 60692:1999, *Nuclear instrumentation – Density gauges utilizing ionizing radiation – Definitions and test methods*

IEC 60846-1:2009, *Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation – Part 1: Portable workplace and environmental meters and monitors*

IEC 60846-2:2007, *Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation – Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes*

IEC 60982:1989, *Level measuring systems utilizing ionizing radiation with continuous or switching output*

IEC 61005:2003, *Radiation protection instrumentation – Neutron ambient dose equivalent (rate) meters*

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements*