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NSAI Standards

Irish Standard
I.S. EN ISO 15382:2017

Radiological protection - Procedures for monitoring the dose to the lens of the eye, the skin and the extremities (ISO 15382:2015)

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National Foreword

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 15382

October 2017

ICS 13.280

English Version

Radiological protection - Procedures for monitoring the dose to the lens of the eye, the skin and the extremities (ISO 15382:2015)

Radioprotection - Procédures pour la surveillance des doses au cristallin, à la peau et aux extrémités (ISO 15382:2015)

Strahlenschutz - Verfahren für die Überwachung der Dosis von Augenlinse, Haut und Extremitäten (ISO 15382:2015)

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European foreword

The text of ISO 15382:2015 has been prepared by Technical Committee ISO/TC 85 "Nuclear energy, nuclear technologies, and radiological protection" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15382:2017 by Technical Committee CEN/TC 430 "Nuclear energy, nuclear technologies, and radiological protection" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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INTERNATIONAL STANDARD

ISO 15382

Second edition
2015-12-01

Radiological protection — Procedures for monitoring the dose to the lens of the eye, the skin and the extremities

Radioprotection — Procédures pour la surveillance des doses au cristallin, à la peau et aux extrémités

Reference number
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Foreword

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The committee responsible for this document is ISO/TC 85, *Nuclear energy, nuclear technologies and radiological protection*, Subcommittee SC 2, *Radiological protection*.

This second edition cancels and replaces the first edition (ISO 15382:2002), which has been technically revised. The main changes are the addition of procedures for monitoring the dose to the lens of the eye.

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Introduction

The human body has to be protected from effects of ionizing radiation. The stochastic effects are covered by the limit on the effective dose while tissue reactions (deterministic effects) are covered by the dose limits for specific organs. The human skin has to be protected from tissue reactions, like erythema and ulceration. For the lens of the eye, there is the risk of radiation induced opacities and cataract at elevated exposures. To protect the skin of the whole body, the extremities, and the lens of the eye, separate dose limits are recommended by the International Commission on Radiological Protection (ICRP). These separate dose limits are needed because, in case of localized exposures, the organ doses to the skin and the lens of the eye could exceed these limits even if the effective doses were lower than the limit.

Specific dosimetry is needed to monitor these doses and to assess compliance with applicable limits. There are some situations where the correct assessment of the exposure of the skin, extremities, and lens of the eye can be important. In the nuclear sector, there can be exposure due to weakly penetrating radiation caused by unshielded open radioactive sources, or by work in glove boxes. These types of exposure can occur, in particular, in connection with contamination. Exposure to weakly penetrating radiation from radioactive noble gases in room air also has to be considered. In the medical field, doses to extremities and doses to the lens of the eye can be important during interventional procedures and in nuclear medicine.

Monitoring the extremities and the lens of the eye is not always straightforward, and many practical problems arise for the application of monitoring in the workplace. As a result, monitoring is often not done as it should be, or not done at all. This International Standard provides guidance on how and when this monitoring should be done, for all the different types of workplace fields.

This International Standard is directed to all who are involved in the dosimetry of the skin, extremities, and the lens of the eye, like for example, radiation protection officers, regulators, workers, dosimetry services, etc.

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Radiological protection — Procedures for monitoring the dose to the lens of the eye, the skin and the extremities

1 Scope

This International Standard provides procedures for monitoring the dose to the skin, the extremities, and the lens of the eye. It gives guidance on how to decide if such dosemeters are needed and to ensure that individual monitoring is appropriate to the nature of the exposure, taking practical considerations into account. National regulations, if they exist, provide requirements that need to be followed.

This International Standard specifies procedures for individual monitoring of radiation exposure of the skin, extremities (hands, fingers, wrists, forearms, feet and ankles), and lens of the eye in planned exposure situations. It covers practices which involve a risk of exposure to photons in the range of 8 keV to 10 MeV and electrons and positrons in the range of 60 keV to 10 MeV.

This International Standard gives guidance for the design of a monitoring program to ensure compliance with legal individual dose limits. It refers to the appropriate operational dose quantities, and it gives guidance on the type and frequency of individual monitoring and the type and positioning of the dosemeter. Finally, different approaches to assess and analyse skin, extremity, and lens of the eye doses are given.

It is not in the scope of this International Standard to consider exposure due to alpha or neutron radiation fields.

2 Normative references

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.

ISO/TS 18090-1, *Radiological protection — Characteristics of reference pulsed radiation — Part 1: Photon radiation*.

IEC 62387, *Radiation protection instrumentation — Passive integrating dosimetry systems for personal and environmental monitoring of photon and beta radiation*

IEC 60846-1, *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 61526, *Radiation protection instrumentation — Measurement of personal dose equivalents Hp(10) and Hp(0,07) for X, gamma, neutron and beta radiations — Direct reading personal dose equivalent meters*

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