

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)

 $\ensuremath{\mathbb C}$ CEN 2017 $\hfill No copying without NSAI permission except as permitted by copyright law.$

I.S. EN ISO 15382:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

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

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on: EN ISO 15382:2017 *Published:* 2017-10-11

This document was published ICS number: under the authority of the NSAI and comes into effect on: 2017-10-29 NOTE: If blank see CEN/CENELEC cover page NSAI T +353 1 807 3800 Sales: 1 Swift Square, F +353 1 807 3838 T +353 1 857 6730 Northwood, Santry E standards@nsai.ie F +353 1 857 6729 Dublin 9 W NSAI.ie W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN ISO 15382:2017 is the adopted Irish version of the European Document 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)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This is a free page sample. Access the full version online.

This page is intentionally left blank

EUROPEAN STANDARD NORME EUROPÉENNE

EN ISO 15382

EUROPÄISCHE NORM

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)

This European Standard was approved by CEN on 13 September 2017.

CEN 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 CEN-CENELEC Management Centre or to any CEN 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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2017 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 15382:2017 E

This is a free page sample. Access the full version online. I.S. EN ISO 15382:2017

EN ISO 15382:2017 (E)

Contents	Page
European foreword	

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.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 15382:2015 has been approved by CEN as EN ISO 15382:2017 without any modification.

This is a free page sample. Access the full version online.

This page is intentionally left blank

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 ISO 15382:2015(E) ISO 15382:2015(E)



© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office Ch. de Blandonnet 8 • CP 401 CH-1214 Vernier, Geneva, Switzerland Tel. +41 22 749 01 11 Fax +41 22 749 09 47 copyright@iso.org www.iso.org

Page

Contents

Introduction v 1 Scope 1 2 Normative references 1 3 Terms and definitions 2 4 Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 Indications from workplace measurements 4 5.2 Indications from workplace measurements 5 5.4 Indications from ismutalitons 5 5.5 Indications from simulations 5 5.6 Indications from simulations 5 5.6 Indications from simulations 5 6.6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 7 6.2.1 Locations to monitor	Forew	ord		iv
1 Scope 1 2 Normative references 1 3 Terms and definitions 2 4 Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.5 Uncertainties 3 5.1 General 4 5.1 Indications from workplace measurements 4 5.3 Indications from workplace measurements 5 5.4 Indications from simulations 5 5.5 Indications from simulations 5 5.6 Indications from simulations 5 5.5 Indications from simulations 5 6 A: Extremity and skin dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.2.4 Application of	Introduction			v
2 Normative references 1 3 Terms and definitions 2 4. Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Indications from workplace measurements 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from simulations 5 5.4 Indications from simulations 5 5.5 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.4 Application of correction factors 7 6.2.4 Monitoring of the lens of the eye 7 6.2.4 Application of correction factors 8 <td>1</td> <td>Scope</td> <td></td> <td>1</td>	1	Scope		1
2 Normative retretions 2 3 Terms and definitions 2 4 Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements. 4 5.3 Indications from workplace measurements 5 5.4 Indications from indiventory measurements 5 5.5 Indications from indiventory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.2.4 Application of correction factors 7 6.2.3 Technical s	2	Norm	ative references	1
3 Terms and demintors 2 4 Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.4 Extremity, skin and lens of the eye monitoring 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from workplace measurements 5 5.4 Indications from iterature data 5 5.5 Indications from simulations 5 5.6 Indications from nonitor 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of dose to the skin or to lens of the eye from contamination	2	Torme	auve references	יייי ד ר
4 Individual monitoring 2 4.1 Quantities 2 4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Indications from workplace measurements 4 5.1 General 4 5.2 Indications from literature data 5 5.4 Indications from confirmatory measurements 5 5.6 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specific	3	Terms		2
4.2 Dose limits and monitoring levels 2 4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from simulations 5 5.4 Indications from simulations 5 5.5 Indications from simulations 5 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.2.4 Application of correction factors 7 6.2.5 Types of dosemeters 8 6.2.4 Application of correction factors 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9	4	Individual monitoring		2
4.3 Monitoring period 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.4 Extremity, skin and lens of the eye monitoring 3 4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from simulations 5 5.4 Indications from interture data 5 5.5 Indications from confirmatory measurements 5 6.1 Extremity and skin dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.1 Types of dosemeters 7 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.2.4 Application of correction factors 7 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Analyses of results 9<		4.2	Dose limits and monitoring levels	2
4.4 Extremity, skin and lens of the eye monitoring 3 4.5 Uncertainties 3 4.5 Uncertainties 3 4.5 Uncertainties 3 4.5 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from whole body dosimetry 5 5.4 Indications from ilterature data 5 5.5 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.2.4 Application of correction factors 7 6.2.2 Types of dosemeters 8 6.2.4 6.2.4 Application of orrection factors 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9		4.3	Monitoring period	3
4.5 Uncertainties 3 4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from ilterature data 5 5.4 Indications from simulations 5 5.5 Indications from onfirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.4 Application of correction factors 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 7 6.2.2 Types of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.3		4.4	Extremity, skin and lens of the eve monitoring	
4.6 Characteristics of radiation fields 4 5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from imulations 5 5.4 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2.2 Types of dosemeters 7 6.2.3 Technical specifications of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 9 7.1 Analyses of results 9 <		4.5	Uncertainties	3
5 Assessment of dose levels prior to routine monitoring 4 5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from literature data 5 5.4 Indications from simulations 5 5.5 Indications from simulations 5 5.6 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the less of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3		4.6	Characteristics of radiation fields	4
5.1 General 4 5.2 Indications from workplace measurements 4 5.3 Indications from biole body dosimetry 5 5.4 Indications from simulations 5 5.5 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Analyses of results 9 7.1 Analyses of results 9 7.2 Application of dose to the skin or the lens of the eye from contamination 9 7.3 Registration and documentation 9 8.4 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to	5	Assess	sment of dose levels prior to routine monitoring	4
5.2 Indications from workplace measurements 4 5.3 Indications from whole body dosimetry 5 5.4 Indications from iterature data 5 5.5 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Analyses of results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of t		5.1	General	4
5.3 Indications from whole body dosimetry 5 5.4 Indications from simulations 5 5.5 Indications from simulations 5 5.6 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 7 6.1.3 Technical specifications of dosemeters 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Analyses of results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and management of the results 9 7.4 Analyses of results 9 7.5 Contamination 9 8.1.1 General 9		5.2	Indications from workplace measurements	4
5.4 Indications from literature data 5 5.5 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.3 Technical specifications of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot part		5.3	Indications from whole body dosimetry	5
5.5 Indications from simulations 5 5.6 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination on protective clothing 10		5.4	Indications from literature data	5
5.6 Indications from confirmatory measurements 5 6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from cont		5.5	Indications from simulations	5
6 Personal dosimetry 6 6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose to the skin or to the lens of the ey		5.6	Indications from confirmatory measurements	5
6.1 Extremity and skin dosimetry 6 6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 6.2.4 Application of correction factors 8 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or to the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.3 Need to correct estimate	6	Perso	nal dosimetry	6
6.1.1 Locations to monitor 6 6.1.2 Types of dosemeters 6 6.1.3 Technical specifications of dosemeters 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.3 Estimation of dose to the skin	0	6.1	Extremity and skin dosimetry	
6.1.2 Types of dosemeters. 6 6.1.3 Technical specifications of dosemeters. 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye. 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters. 8 6.2.3 Technical specifications of dosemeters. 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contaminatio			6.1.1 Locations to monitor	6
6.1.3 Technical specifications of dosemeters. 7 6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye. 7 6.2.1 Locations to monitor 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters. 8 6.2.3 Technical specifications of dosemeters. 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing 11 8.2 Estimation of dose from exposure to radioactivity in the air 11			6.1.2 Types of dosemeters	6
6.1.4 Application of correction factors 7 6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.3 Neato to correct estimated do			6.1.3 Technical specifications of dosemeters	7
6.2 Monitoring of the lens of the eye 7 6.2.1 Locations to monitor 7 6.2.2 Types of dosemeters 8 6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.3 Need to correct estimated doses due to contamination of dosemeters 111 8.3 Need to correct estimated doses due to contamination of dosemeter			6.1.4 Application of correction factors	7
6.2.1Locations to monitor76.2.2Types of dosemeters86.2.3Technical specifications of dosemeters86.2.4Application of correction factors87Interpretation and management of the results97.1Analyses of results97.2Optimization97.3Registration and documentation98Special cases98.1Contamination98.1.2Estimation of dose to the skin or the lens of the eye from contamination108.1.3Estimation of dose to the skin or to the eye lens from hot particles108.1.4Estimation of dose to the skin or to the lens of the eye from contamination118.2Estimation of dose doses due to contamination on protective clothing118.3Need to correct estimated doses due to contamination of dosemeters118.3Need to correct estimated doses due to contamination of dosemeters118.4Annex A (normative) Technical specifications of dosemeters13Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25		6.2	Monitoring of the lens of the eye	7
6.2.2 Types of dosemeters. 8 6.2.3 Technical specifications of dosemeters. 8 6.2.4 Application of correction factors. 8 7 Interpretation and management of the results. 9 7.1 Analyses of results. 9 7.2 Optimization 9 7.3 Registration and documentation. 9 8 Special cases. 9 8.1 Contamination. 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination. 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles. 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing. 11 8.2 Estimation of dose from exposure to radioactivity in the air. 11 8.3 Need to correct estimated doses due to contamination of dosemeters. 11 8.3 Need to correct estimated doses due to contamination of dosemeters. 11 8.4 Informative) Technical specifications of dosemeters. 13 Annex B (informative) Special considerations in the medical sector 18 Annex D (informative) Specia			6.2.1 Locations to monitor	7
6.2.3 Technical specifications of dosemeters 8 6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.4 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex D (informative) Special consi			6.2.2 Types of dosemeters	8
6.2.4 Application of correction factors 8 7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.4 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Special considerations in the medical sector 18 Annex D (informative) Special con			6.2.3 Technical specifications of dosemeters	8
7 Interpretation and management of the results 9 7.1 Analyses of results 9 7.2 Optimization 9 7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.3 Need to correct estimated doses due to contamination of dosemeters 13 Annex A (normative) Technical specifications of dosemeters 13 Annex C (informative) Special considerations in the medical sector 18 Annex D (in			6.2.4 Application of correction factors	8
7.1Analyses of results97.2Optimization97.3Registration and documentation98Special cases98.1Contamination98.1.1General98.1.2Estimation of dose to the skin or the lens of the eye from contamination108.1.3Estimation of dose to the skin or to the eye lens from hot particles108.1.4Estimation of dose to the skin or to the lens of the eye from contamination108.1.4Estimation of dose to the skin or to the lens of the eye from contamination118.2Estimation of dose from exposure to radioactivity in the air118.3Need to correct estimated doses due to contamination of dosemeters118.3Need to correct estimated doses due to contamination of dosemeters13Annex A (normative) Technical specifications of dosemeters13Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25	7	Interp	pretation and management of the results	9
7.2Optimization97.3Registration and documentation98Special cases98.1Contamination98.1.1General98.1.2Estimation of dose to the skin or the lens of the eye from contamination108.1.3Estimation of dose to the skin or to the eye lens from hot particles108.1.4Estimation of dose to the skin or to the lens of the eye from contamination118.2Estimation of dose to the skin or to the lens of the eye from contamination118.3Need to correct estimated doses due to contamination of dosemeters118.3Need to correct estimated doses to the lens of the eye14Annex B (informative) Monitoring the dose to the lens of the eye14Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25		7.1	Analyses of results	9
7.3 Registration and documentation 9 8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25		7.2	Optimization	9
8 Special cases 9 8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex C (informative) Special considerations in the medical sector 18 Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25		7.3	Registration and documentation	9
8.1 Contamination 9 8.1.1 General 9 8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex C (informative) Special considerations in the medical sector 18 Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25	8	Specia	al cases	9
8.1.1General98.1.2Estimation of dose to the skin or the lens of the eye from contamination108.1.3Estimation of dose to the skin or to the eye lens from hot particles108.1.4Estimation of dose to the skin or to the lens of the eye from contamination118.2Estimation of dose from exposure to radioactivity in the air118.3Need to correct estimated doses due to contamination of dosemeters11Annex A (normative)Technical specifications of dosemeters13Annex B (informative)Monitoring the dose to the lens of the eye14Annex D (informative)Special considerations in the medical sector18Bibliography25		8.1	Contamination	9
8.1.2 Estimation of dose to the skin or the lens of the eye from contamination 10 8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex D (informative) Special considerations in the medical sector 18 Bibliography 25			8.1.1 General	9
8.1.3 Estimation of dose to the skin or to the eye lens from hot particles 10 8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing 11 8.2 Estimation of dose from exposure to radioactivity in the air 11 8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex D (informative) Special considerations in the medical sector 18 Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25			8.1.2 Estimation of dose to the skin or the lens of the eye from contamination	10
8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination on protective clothing			8.1.3 Estimation of dose to the skin or to the eye lens from hot particles.	10
8.2Estimation of dose from exposure to radioactivity in the air118.3Need to correct estimated doses due to contamination of dosemeters11Annex A (normative) Technical specifications of dosemeters13Annex B (informative) Monitoring the dose to the lens of the eye14Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25			8.1.4 Estimation of dose to the skin or to the lens of the eye from contamination	4.4
8.2 Estimation of dose from exposure to radioactivity in the air		0.2	On protective clotning	
8.3 Need to correct estimated doses due to contamination of dosemeters 11 Annex A (normative) Technical specifications of dosemeters 13 Annex B (informative) Monitoring the dose to the lens of the eye 14 Annex C (informative) Special considerations in the medical sector 18 Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25		8.2	Estimation of dose from exposure to radioactivity in the air	
Annex A (normative) Technical specifications of dosemeters13Annex B (informative) Monitoring the dose to the lens of the eye14Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25		8.3	Need to correct estimated doses due to contamination of dosemeters	1 1
Annex B (informative) Monitoring the dose to the lens of the eye14Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25	Annex	Annex A (normative) Technical specifications of dosemeters		13
Annex C (informative) Special considerations in the medical sector18Annex D (informative) Special considerations in nuclear power plants21Bibliography25	Annex	Annex B (informative) Monitoring the dose to the lens of the eye		14
Annex D (informative) Special considerations in nuclear power plants 21 Bibliography 25	Annex	Annex C (informative) Special considerations in the medical sector		18
Bibliography	Annex D (informative) Special considerations in nuclear power plants			21
	Biblio	Bibliography		

ISO 15382:2015(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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.

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.

This is a free page sample. Access the full version online. I.S. EN ISO 15382:2017

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

ICRP, 2007. The 2007 Recommendations of the International Commission on Radiological Protection, ICRP Publication 103. Ann. ICRP 37 (2-4)

ICRP, 2010. Conversion Coefficients for Radiological Protection Quantities for External Radiation Exposures, ICRP Publication 116, Ann. ICRP 40(2–5), 2010

ICRP, 2012. ICRP Statement on Tissue Reactions / Early and Late Effects of Radiation in Normal Tissues and Organs – Threshold Doses for Tissue Reactions in a Radiation Protection Context, ICRP Publication 118. Ann. ICRP 41(1/2)

ICRU, 2011. Fundamental Quantities and Units for Ionizing Radiation, ICRU Publication 85. J. ICRU 11(1)



This is a free preview. Purchase the entire publication at the link below:

Product Page

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation