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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

PROJECT NUMBER: IEC 60050-395 ED2	
DATE OF CIRCULATION: 2020-06-05	CLOSING DATE FOR COMMENTS: 2020-08-28
SUPERSEDES DOCUMENTS: 45/875/RR	

IEC TC 45 : NUCLEAR INSTRUMENTATION	
SECRETARIAT: Russian Federation	SECRETARY: Mr Sergei Shumov
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 1, TC 45, SC 45A, SC 45B, SC 62C	PROPOSED HORIZONTAL STANDARD: ☒ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	

This document is still under study and subject to change. It should not be used for reference purposes.

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

TITLE:
International Electrotechnical Vocabulary (IEV) – Part 395: Nuclear instrumentation – Physical phenomena, basic concepts, instruments, systems, equipment and detectors

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL ELECTROTECHNICAL VOCABULARY –

Part 395: Nuclear instrumentation: Physical phenomena, basic concepts, instruments, systems, equipment and detectors

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 60050-395 has been prepared by IEC technical committee 45: Nuclear instrumentation, under the responsibility of IEC technical committee 1: Terminology.

This second edition cancels and replaces the first edition published in 2014. It constitutes a technical revision. It has the status of a horizontal standard in accordance with IEC Guide 108.

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

FDIS	Report on voting
1/####/FDIS	1/####/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.

In this part of the IEV, the terms and definitions are provided in French, English and Russian; in addition the terms are given in Arabic (ar), Czech (cs), German (de), Spanish (es), Finnish (fi), Italian (it), Japanese (ja), Norwegian [Bokmål (nb) and Nynorsk (nn)], Polish (pl), Portuguese (pt), Slovenian (sl), Serbian (sr), Swedish (sv) and Chinese (zh).

A list of all parts of the IEC 60050 series, published under the general title *International Electrotechnical Vocabulary*, can be found on the IEC website and is available at www.electropedia.org.

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

VOCABULAIRE ÉLECTROTECHNIQUE INTERNATIONAL –

Partie 395: Instrumentation nucléaire: Phénomènes physiques, notions fondamentales, instruments, systèmes, équipements et détecteurs

AVANT-PROPOS

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La Norme internationale IEC 60050-395 a été établie par le comité d'études 45 de l'IEC: Instrumentation nucléaire, sous la responsabilité du comité d'études 1 de l'IEC: Terminologie.

Cette deuxième édition annule et remplace la première édition parue en 2014. Cette édition constitue une révision technique. Elle a le statut d'une norme horizontale conformément au Guide IEC 108.

Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
1/####/FDIS	1/####/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

Dans la présente partie de l'IEV, les termes et définitions sont donnés en français, en anglais et en russe: de plus, les termes sont indiqués en arabe (ar), tchèque (cs), allemand (de), espagnol (es), finnois (fi), italien (it), japonais (ja), norvégien [bokmål (nb) et nynorsk (nn)], polonais (pl), portugais (pt), slovène (sl), serbe (sr), suédois (sv) et chinois (zh).

Une liste de toutes les parties de la série IEC 60050, publiée sous le titre général *Vocabulaire Electrotechnique International*, peut être consultée sur le site web de l'IEC et est disponible à l'adresse www.electropedia.org.

МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ

МЕЖДУНАРОДНЫЙ ЭЛЕКТРОТЕХНИЧЕСКИЙ СЛОВАРЬ –

Часть 395: Ядерное приборостроение: Физические явления, основные понятия, приборы, системы, оборудование и детекторы

ПРЕДИСЛОВИЕ

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Международный стандарт МЭК 60050-395 был подготовлен техническим комитетом 45 МЭК: Ядерное приборостроение, под руководством технического комитета 1 МЭК: Терминология.

Это второе издание отменяет и заменяет первое издание, опубликованное в 2014 году. Оно представляет собой технический пересмотр. Он имеет статус горизонтального стандарта в соответствии с Руководством 108 МЭК.

Текст этого стандарта основан на следующих документах:

FDIS	Отчет о голосовании
1/####/FDIS	1/####/RVD

Полную информацию по голосованию для одобрения этого стандарта можно найти в отчете о голосовании, указанном в вышеприведенной таблице.

Настоящая публикация подготовлена в соответствии с директивами ИСО/МЭК, Часть 2.

В этой части МЭС термины и определения приводятся на французском, английском и русском языках; кроме того, термины **приводятся на арабском (ar), чешском (cs), немецком (de), испанском (es), финском (fi), итальянском (it), японском (ja), норвежском [Bokmål (nb) and Nynorsk (nn)], польском (pl), португальском (pt), словенском (sl), сербском (sr), шведском (sv) и китайский (zh).**

Перечень всех частей серии МЭК 60050, опубликованных под общим названием *Международный электротехнический словарь*, можно найти на следующем сайте МЭК: www.electropedia.org.

INTRODUCTION

Principles and rules followed

General

The IEV (IEC 60050 series) is a general purpose multilingual vocabulary covering the field of electrotechnology, electronics and telecommunication (available at www.electropedia.org). It comprises about 20 000 *terminological entries*, each corresponding to a *concept*. These entries are distributed among about 80 *parts*, each part corresponding to a given field.

EXAMPLE

Part 161 (IEC 60050-161): Electromagnetic compatibility

Part 411 (IEC 60050-411): Rotating machines

The entries follow a hierarchical classification scheme Part/Section/Concept; within the sections, the concepts are organized in a systematic order.

The terms and definitions (and possibly non-verbal representations, examples, notes and sources) in the entries are given in two or more of the three IEC languages, that is French, English and Russian (*principal IEV languages*).

In each entry, the terms alone are also given in several of the *additional IEV languages* [Arabic (ar), Czech (cs), German (de), Spanish (es), Finnish (fi), Italian (it), Japanese (ja), Norwegian [Bokmål (nb) and Nynorsk (nn)], Polish (pl), Portuguese (pt), Slovenian (sl), Serbian (sr), Swedish (sv) and Chinese (zh)].

Organization of a terminological entry

Each of the entries corresponds to a concept, and comprises:

- an *entry number*,
- possibly a *letter symbol for the quantity or unit*,

then, for the principal IEV languages present in the part:

- the term designating the concept, called “*preferred term*”, possibly accompanied by *synonyms* and *abbreviations*,
- the *definition* of the concept,
- possibly *non-verbal representations, examples and notes to entry*,
- possibly the *source*,

and finally, for the additional IEV languages, the terms alone.

Entry number

The entry number is comprised of three elements, separated by hyphens:

Part number: 3 digits,

Section number: 2 digits,

Concept number: 2 digits (01 to 99).

EXAMPLE **131-13-22**

Letter symbols for quantities and units

These symbols, which are language independent, are given on a separate line following the entry number.

EXAMPLE

131-12-04

R

resistance

Preferred term and synonyms

The preferred term is the term that heads a terminological entry in a given language; it may be followed by synonyms. It is printed in boldface.

Synonyms:

The synonyms are printed on separate lines under the preferred term: preferred synonyms are printed in boldface, and deprecated synonyms are printed in lightface. Deprecated synonyms are prefixed by the text “DEPRECATED:”.

Absence of an appropriate term:

When no appropriate term exists in a given language, the preferred term is replaced by five dots, as follows:

“ ” (and there are of course no synonyms).

Attributes

Each term (or synonym) may be followed by attributes giving additional information, and printed in lightface on the same line as the corresponding term, following this term.

EXAMPLE

specific use of the term:

transmission line, <in electric power systems>

national variant:

lift, GB

grammatical information:

quantize, verb

transient, noun

AC, adj

Source

In some cases, it has been necessary to include in an IEV part a concept taken from another IEV part, or from another authoritative terminology document (ISO/IEC Guide 99, ISO/IEC 2382, etc.), either with or without modification to the definition (and possibly to the term).

This is indicated by the mention of this source, printed in lightface, and placed at the end of the entry in each of the principal IEV languages present.

EXAMPLE SOURCE: IEC 60050-131:2002, 131-03-13, modified

Terms in additional IEV languages

These terms are placed following the entries in the principal IEV languages, on separate lines (a single line for each language), preceded by the alpha-2 code for the language defined in ISO 639-1, and in the alphabetic order of this code.

INTRODUCTION

Principes d'établissement et règles suivies

Généralités

L'IEV (série de normes IEC 60050) est un vocabulaire multilingue à usage général couvrant le champ de l'électrotechnique, de l'électronique et des télécommunications (disponible à www.electropedia.org). Il comprend environ 20 000 *articles terminologiques* correspondant chacun à un *concept* (une notion). Ces articles sont répartis dans environ 80 *parties*, chacune correspondant à un domaine donné.

EXEMPLE

Partie 161 (IEC 60050-161): Compatibilité électromagnétique

Partie 411 (IEC 60050-411): Machines tournantes

Les articles suivent un schéma de classification hiérarchique Partie/Section/Concept, les concepts étant, au sein des sections, classés par ordre systématique.

Les termes et définitions (et éventuellement les représentations non verbales, exemples, notes et sources) sont donnés dans deux ou plus des trois langues de l'IEC, c'est-à-dire français, anglais et russe (*langues principales de l'IEV*).

Dans chaque article, les termes seuls sont également donnés dans plusieurs des *langues additionnelles de l'IEV* [arabe (ar), tchèque (cs), allemand (de), espagnol (es), finnois (fi), italien (it), japonais (ja), norvégien [bokmål (nb) et nynorsk (nn)], polonais (pl), portugais (pt), slovène (sl), serbe (sr), suédois (sv) et chinois (zh)].

Constitution d'un article terminologique

Chacun des articles correspond à un concept, et comprend:

- un *numéro d'article*,
- éventuellement un *symbole littéral de grandeur ou d'unité*,

puis, pour chaque langue principale de l'IEV présente dans la partie:

- le terme désignant le concept, appelé « *terme privilégié* », éventuellement accompagné de *synonymes et d'abréviations*,
- la *définition* du concept,
- éventuellement des *représentations non verbales*, des *exemples* et des *notes à l'article*,
- éventuellement la *source*,

et enfin, pour les langues additionnelles de l'IEV, les termes seuls.

Numéro d'article

Le numéro d'article comprend trois éléments, séparés par des traits d'union:

Numéro de partie: 3 chiffres,

Numéro de section: 2 chiffres,

Numéro du concept: 2 chiffres (01 à 99).

EXEMPLE **131-13-22**

Symboles littéraux de grandeurs et d'unités

Ces symboles, indépendants de la langue, sont donnés sur une ligne séparée suivant le numéro d'article.

EXEMPLE

131-12-04

R

résistance, f

Terme privilégié et synonymes

Le terme privilégié est le terme qui figure en tête d'un article dans une langue donnée; il peut être suivi par des synonymes. Il est imprimé en gras.

Synonymes:

Les synonymes sont imprimés sur des lignes séparées sous le terme privilégié: les synonymes privilégiés sont imprimés en gras, et les synonymes déconseillés sont imprimés en maigre. Les synonymes déconseillés sont précédés par le texte « DÉCONSEILLÉ: ».

Absence de terme approprié:

Lorsqu'il n'existe pas de terme approprié dans une langue, le terme privilégié est remplacé par cinq points, comme ceci:

« » (et il n'y a alors bien entendu pas de synonymes).

Attributs

Chaque terme (ou synonyme) peut être suivi d'attributs donnant des informations supplémentaires; ces attributs sont imprimés en maigre, à la suite de ce terme, et sur la même ligne.

EXEMPLE

spécificité d'utilisation du terme:

rang, <d'un harmonique>

variante nationale:

unité de traitement, CA

catégorie grammaticale:

quantifier, verbe

électronique, f

électronique, adj

Source

Dans certains cas, il a été nécessaire d'inclure dans une partie de l'IEV un concept pris dans une autre partie de l'IEV, ou dans un autre document de terminologie faisant autorité (Guide ISO/IEC 99, ISO/IEC 2382, etc.), avec ou sans modification de la définition (ou éventuellement du terme).

Ceci est indiqué par la mention de cette source, imprimée en maigre et placée à la fin de l'article dans chacune des langues principales de l'IEV présentes.

EXEMPLE SOURCE: IEC 60050-131:2002, 131-03-13, modifié

Termes dans les langues additionnelles de l'IEV

Ces termes sont placés à la fin des articles dans les langues principales de l'IEV, sur des lignes séparées (une ligne par langue), précédés par le code alpha-2 de la langue, défini dans l'ISO 639-1, et dans l'ordre alphabétique de ce code.

ВВЕДЕНИЕ

Соблюдение принципов и правил

Общие сведения

МЭС (серия IEC 60050) является универсальным многоязычным словарем, охватывающим области электротехники, электроники и телекоммуникации (доступным на сайте www.electropedia.org). Он содержит около 20 000 *терминологических статей*, каждая из которых соответствует *концепции*. Эти статьи распределены между примерно 80 *частями*, каждая из которых соответствует определенной области.

ПРИМЕР

Часть 161 (IEC 60050-161): Электромагнитная совместимость

Часть 411 (IEC 60050-411): Вращающиеся механизмы

Статьи следуют иерархической схеме классификации Часть / Раздел / Концепция; внутри разделов концепции организованы в систематическом порядке.

Термины и определения (и, возможно, невербальные представления, примеры, примечания и источники) в статьях приводятся на двух или более из трех языков МЭК: французском, английском и русском (*основные языки МЭС*).

Также в каждой статье приводятся только термины на нескольких дополнительных языках МЭС [арабском (ar), чешском (cs), немецком (de), испанском (es), финском (fi), итальянском (it), японском (ja), норвежском [Bokmål (nb) and Nynorsk (nn)], польском (pl), португальском (pt), словенском (sl), сербском (sr), шведском (sv) и китайском (zh)].

Организация терминологической статьи

Каждая из статей соответствует концепции и включает:

- *номер статьи*,
- *возможно буквенное обозначение величины или единицы ее измерения*,

затем для основных языков МЭС, присутствующих в части, приводятся:

- *термин, обозначающий концепцию, называемый “предпочтительным термином”, который, возможно, сопровождается синонимами и аббревиатурами*,
- *определение концепции*,
- *возможно невербальные представления, примеры и примечания к статье*,
- *возможно, источник*,

и, наконец, для дополнительных языков МЭС, приводятся только термины.

Номер статьи

Номер статьи состоит из трех частей, разделенных дефисом:

Номер части: 3 цифры,

Номер раздела: 2 цифры,

Номер концепции: 2 цифры (01 to 99).

ПРИМЕР **131-13-22**

Буквенные обозначения величин и их единиц измерения

Эти символы, не зависящие от языка, приводятся в отдельной строке после номера статьи.

ПРИМЕР

131-12-04

R

сопротивление

Предпочтительный термин и синонимы

Предпочтительным термином является термин, который возглавляет терминологическую статью на данном языке; за ним могут следовать синонимы. Он печатается жирным шрифтом.

Синонимы:

Синонимы печатаются отдельными строками под предпочтительным термином: предпочтительные синонимы печатаются жирным шрифтом, а устаревшие синонимы печатаются в обычном шрифтом. Устаревшие синонимы предваряются словом “УСТАРЕВШИЙ:”.

Отсутствие соответствующего термина:

Если в данном языке нет подходящего термина, предпочтительный термин заменяется пятью точками, как показано ниже:

“ ” (и, конечно, синонимы отсутствуют).

Атрибуты

За каждым термином (или синонимом) могут следовать атрибуты, дающие дополнительную информацию и печатающиеся обычным шрифтом на той же строке, что и соответствующий термин, и размещающиеся вслед за этим термином.

ПРИМЕР

специфичное использование термина:

линия передачи, <в системе электроснабжения >

национальные варианты:

тормозное излучение, RU

грамматическая информация:

квантовать, глагол

перепад, существительное

переходной, прилагательное

Источник

В некоторых случаях бывает необходимо включить в данную часть МЭС концепцию, взятую из другой части МЭС или из другого авторитетного терминологического документа (руководство ИСО/МЭК 99, ИСО/МЭК 2382 и т.д.), либо с изменением определения (и, возможно, термина), либо без него.

На это указывает упоминание этого источника, напечатанное обычным шрифтом и помещенное в конце статьи на каждом из основных языков МЭС.

ПРИМЕР ИСТОЧНИК: IEC 60050-131:2002, 131-03-13, модифицирован.

Термины на дополнительных языках МЭС

Эти термины помещаются после статей на основных языках МЭС в отдельных строках (по одной строке для каждого языка), которым предшествует код альфа-2 для языка, определенного в ISO 639-1, и в алфавитном порядке этого кода.

INTERNATIONAL ELECTROTECHNICAL VOCABULARY –

Part 395: Nuclear instrumentation: Physical phenomena, basic concepts, instruments, systems, equipment and detectors

1 Scope

This part of IEC 60050 gives the general terminology used in nuclear instrumentation, including physical phenomena, basic concepts, instruments, systems, equipment and detectors. It has the status of a horizontal standard in accordance with IEC Guide 108, *Guidelines for ensuring the coherency of IEC publications – Application of horizontal standards*.

This terminology is consistent with the terminology developed in the other specialized parts of the IECV.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

VOCABULAIRE ÉLECTROTECHNIQUE INTERNATIONAL –

Partie 395: Instrumentation nucléaire: Phénomènes physiques, notions fondamentales, instruments, systèmes, équipements et détecteurs

1 Domaine d'application

La présente partie de l'IEC 60050 donne la terminologie générale utilisée dans le domaine de l'instrumentation nucléaire, y compris les phénomènes physiques, notions fondamentales, instruments, systèmes, équipements et détecteurs. La présente partie de l'IEC 60050 a le statut de norme horizontale conformément au Guide IEC 108, *Lignes directrices pour assurer la cohérence des publications de l'IEC – Application des normes horizontales*.

Cette terminologie est en accord avec la terminologie figurant dans les autres parties spécialisées de l'IEV.

La présente norme horizontale est essentiellement destinée à l'usage des comités d'études dans la préparation des normes, conformément aux principes établis dans le Guide IEC 108.

L'une des responsabilités d'un comité d'études est d'utiliser, autant que possible, les normes horizontales lors de la préparation de ses publications.

2 Références normatives

Le présent document ne contient aucune référence normative.

3 Termes et définitions

МЕЖДУНАРОДНЫЙ ЭЛЕКТРОТЕХНИЧЕСКИЙ СЛОВАРЬ –

Часть 395: Ядерное приборостроение: Физические явления, основные понятия, приборы, системы, оборудование и детекторы

1 Область применения

Эта часть МЭК 60050 дает общую терминологию, используемую в ядерном приборостроении, включая физические явления, основные понятия, приборы, системы, оборудование и детекторы. Она имеет статус горизонтального стандарта в соответствии с руководством IEC 108, *Руководящими принципами обеспечения согласованности публикаций МЭК – Применение горизонтальных стандартов*.

Эта терминология согласуется с терминологией, разработанной в других специализированных частях МЭС.

Данный горизонтальный стандарт предназначен, главным образом, для использования техническими комитетами при подготовке стандартов в соответствии с принципами, изложенными в Руководстве 108 МЭК.

Одной из обязанностей технического комитета является, когда это применимо, использование горизонтальных стандартов при подготовке своих публикаций.

2 Нормативные ссылки

В данном документе нет нормативных ссылок.

3 Термины и определения

Section 395-11 – Nuclear physics: ionizing radiation, radioactive disintegration, nuclear reactions and interactions

Section 395-11 – Physique nucléaire: rayonnements ionisants, désintégration radioactive, réactions et interactions nucléaires

Раздел 395-11 – Ядерная физика: ионизирующее излучение, радиоактивный распад, ядерные реакции и взаимодействия

395-11-01

ionizing radiation

radiation, the interaction of which with the environment leads to the formation of ions of different signs

Note 1 to entry: When used in the IEC standards for nuclear instrumentation, term "radiation" usually refers only to ionizing radiation.

395-11-02

primary radiation

ionizing radiation emitted directly by a radiation source

Note 1 to entry: This entry was numbered 395-02-37 in IEC 60050-395:2014.

395-11-03

secondary radiation

ionizing radiation emitted by matter as a result of an interaction of primary radiation with this matter

Note 1 to entry: This entry was numbered 395-02-38 in IEC 60050-395:2014.

395-11-04

annihilation radiation

ionizing radiation that is produced when an elementary particle and its antiparticle interact and cease to exist

Note 1 to entry: When, for example, a positron and an electron interact, two photons of energy value 0,511 MeV are emitted in opposite directions.

Note 2 to entry: This entry was numbered 395-02-01 in IEC 60050-395:2014.

395-11-05

moderation

process in which the energy of the neutrons is reduced through scattering without appreciable capture

Note 1 to entry: This entry was numbered 395-02-21 in IEC 60050-395:2014.

395-11-06

albedo, <of neutrons>

probability under specified conditions that a neutron entering into a region through a surface will return through that surface

Note 1 to entry: This entry was numbered 395-02-23 in IEC 60050-395:2014.

395-11-07

cosmic radiation

ionizing radiation consisting of high-energy particles of extra-terrestrial origin and the secondary particles generated by interaction of these particles with the atmosphere

Note 1 to entry: This entry was numbered 395-02-36 in IEC 60050-395:2014.

- 109 **395-11-08**
110 **spontaneous fission**
111 nuclear fission which occurs naturally in certain radionuclides
112
113 Note 1 to entry: This entry was numbered 395-02-44 in IEC 60050-395:2014.
114 **395-11-09**
115 **thermal fission**
116 nuclear fission caused by thermal neutrons
117 Note 1 to entry: This entry was numbered 395-02-45 in IEC 60050-395:2014.
118 **395-11-10**
119 **fast fission**
120 nuclear fission caused by fast neutrons
121 Note 1 to entry: This entry was numbered 395-02-46 in IEC 60050-395:2014.
122 **395-11-11**
123 **thermonuclear fusion**
124 nuclear reaction between two light atomic nuclei resulting in the production of at least one
125 nuclear species heavier than either initial nucleus, and in the release of energy
126 Note 1 to entry: This entry was numbered 395-02-47 in IEC 60050-395:2014.
127 **395-11-12**
128 **tissue equivalent material**
129 tissue substitute
130 material designed to have, when irradiated, interaction properties similar to those of soft
131 tissue
132 Note 1 to entry: The tissue equivalent material is used to make phantoms, such as the ICRU sphere.
133 Note 2 to entry: The tissue equivalent material used in the ICRU sphere has a density of 1 g/cm³ and an elemental
134 composition, by mass, of 76.2% oxygen, 11.1% carbon, 10.1% hydrogen and 2.6% nitrogen, but materials of
135 various other compositions (e.g. water) are considered suitable for particular applications
136 Note 3 to entry: This entry was numbered 395-01-40 in IEC 60050-395:2014.
137 **395-11-13**
138 **internal conversion**
139 emission of an electron and characteristic X-ray from an atom due to the liberation of energy
140 from its excited atomic nucleus
141 Note 1 to entry: This entry was numbered 395-02-56 in IEC 60050-395:2014.
142 **395-11-14**
143 **nuclear reaction**
144 event in which one or more atomic nuclei are involved, resulting in a change of mass, electric
145 charge or energy state
146 Note 1 to entry: This entry was numbered 395-02-58 in IEC 60050-395:2014.
147 **395-11-15**
148 **nuclear chain reaction**
149 set of fission reactions in which the neutrons necessary to produce a fission are themselves
150 produced by a previous fission
151 Note 1 to entry: Depending on whether the number of reactions directly caused by the primary fission reaction is on
152 average less than, equal to or greater than one, the reaction is called, respectively, subcritical, critical or
153 supercritical.
154 Note 2 to entry: This entry was numbered 395-02-59 in IEC 60050-395:2014.

- 155 **395-11-16**
156 **ionization**
157 formation of ions by the addition or removal of electrons to or from atoms or molecules, or by
158 the splitting-up of molecules
159 Note 1 to entry: This entry was numbered 395-02-60 in IEC 60050-395:2014.
160 **395-11-17**
161 **activation**
162 process of inducing radioactivity
163 Note 1 to entry: This entry was numbered 395-02-61 in IEC 60050-395:2014.
164 [SOURCE: IAEA, GSR Part 3, 2014]
165 **395-11-18**
166 **scattering**, <of particles>
167 process in which a change in direction or energy of an incident particle or incident radiation is
168 caused by a collision with a particle or a system of particles
169 Note 1 to entry: This entry was numbered 395-02-62 in IEC 60050-395:2014.
170 **395-11-19**
171 **induced radioactivity**
172 radioactivity induced in matter by interaction with neutrons, charged particles or with high
173 energy electrons or photons
174 Note 1 to entry: This entry was numbered 395-02-66 in IEC 60050-395:2014.
175 **395-11-20**
176 **gas multiplication**
177 process whereby, in a sufficiently high electric field, the ion pairs produced in a gas by
178 incident radiation generate additional ion pairs
179 Note 1 to entry: This entry was numbered 395-02-68 in IEC 60050-395:2014.
180 **395-11-21**
181 **aerosol**
182 set of solid or liquid particles in suspension in a gaseous medium
183 Note 1 to entry: The range of particle diameter is generally from a few nanometres up to 10 micrometres.
184 Note 2 to entry: This entry was numbered 395-02-30 in IEC 60050-395:2014.
185 **395-11-22**
186 **particulate**
187 minuscule piece of material in suspension in a gas or a liquid
188 Note 1 to entry: This entry was numbered 395-02-31 in IEC 60050-395:2014.
189 **395-11-23**
190 **dust**
191 particle in suspension in a gas that would have a gravitational settling velocity in air greater
192 than 0,25 m/s
193 Note 1 to entry: Equivalent aerodynamic diameter of dust is generally included between 100 µm to 2 mm.
194 Note 2 to entry: This entry was numbered 395-02-32 in IEC 60050-395:2014.
195 **395-11-24**
196 **generator of radioactive aerosols**
197 device for obtaining radioactive aerosols having pre-set properties such as: equivalent
198 aerodynamic diameter, standard deviation of that diameter and electric charge of aerosol
199 Note 1 to entry: This entry was numbered 395-02-41 in IEC 60050-395:2014.

- 200 **395-11-25**
- 201 **rest mass**
- 202 mass of a particle excluding any mass increase due to kinetic energy
- 203 Note 1 to entry: This entry was numbered 395-01-03 in IEC 60050-395:2014.
- 204

205

206

Section 395-12 – Quantities and units

207

Section 395-12 – Grandeurs et unités

208

Раздел 395-12 – Величины и единицы209 **395-12-01**210 **m**211 **effective atomic number**212 **weighted average of atomic numbers of the constituents of a material**

213 Note 1 to entry: The weighting may be different depending upon the interaction of interest, e.g., regarding the
 214 photoelectric effect or production of bremsstrahlung radiation.

215 Note 2 to entry: This entry was numbered 395-01-01 in IEC 60050-395:2014.

216 **395-12-02**217 **u**218 **unified atomic mass unit**219 $1\text{ u} = 1,660\,538\,921(73) \times 10^{-27}\text{ kg}$

220 Note 1 to entry: This entry was numbered 395-01-02 in IEC 60050-395:2014.

221 [SOURCE: ISO 80000-10:2009, item 10-2.b, modified]

222 **395-12-03**223 **A**224 **activity**

225 quantity A for an amount of radionuclide in a given energy state at a given time, defined as:

$$226 \quad A(t) = \frac{dN}{dt}$$

227 where dN is the expectation value of the number of spontaneous nuclear transformations from
 228 the given energy state in the time interval dt.

229 Note 1 to entry: The rate at which nuclear transformations occur in a radioactive material. The equation is
 230 sometimes given as:

$$231 \quad A(t) = -\frac{dN}{dt}$$

232 Note 2 to entry: The SI unit of activity is the reciprocal second (s⁻¹), termed the becquerel (Bq).

233 Note 3 to entry: Formerly expressed in curies (Ci); activity values may be given in Ci (with the equivalent in Bq in
 234 parentheses) if they are being quoted from a reference that uses Ci as the unit.

235 Note 4 to entry: This entry was numbered 395-01-05 in IEC 60050-395:2014.

236 [SOURCE: IAEA Safety Glossary, 2018]

237 **395-12-04**238 **specific activity**239 **activity per unit mass of a given radionuclide**

240 Note 1 to entry: This value is expressed in becquerels per kilogram (Bq/kg).

241 Note 2 to entry: This entry was numbered 395-01-08 in IEC 60050-395:2014

242 [SOURCE: ISO 80000-10-28: 2019]

243 **395-12-05**

244 C_A

245 **volumetric activity**

246 concentration

247 activity concentration

248 activity per unit volume of the sample

249 Note 1 to entry: This quantity is expressed in becquerels per cubic metre (Bq/m³).

250 Note 2 to entry: For a gas it is necessary to indicate the temperature and pressure conditions for which the
251 volumetric activity expressed in becquerels per cubic metre is measured. For example, under standard temperature
252 and pressure (STP).

253 Note 3 to entry: This entry was numbered 395-01-09 in IEC 60050-395:2014

254 **395-12-06**

255 **surface activity**

256 activity per unit area of the emitting surface of the sample

257 Note 1 to entry: This quantity is expressed in becquerels per square metre (Bq/m²).

258 Note 2 to entry: This entry was numbered 395-01-10 in IEC 60050-395:2014.

259 **395-12-07**

260 λ

261 **decay constant**

262 disintegrations per unit time dN/dt for an atomic nucleus divided by the number of nuclei N
263 existing at the same time t

264
$$\lambda = -\frac{1}{N} \times \frac{dN}{dt}$$

265 Note 1 to entry: The decay constant is expressed in reciprocal seconds (s⁻¹).

266 Note 2 to entry: The decay constant may be considered the total probability of radioactive decay (disintegration
267 and/or nuclear transition).

268 Note 3 to entry: This entry was numbered 395-01-11 in IEC 60050-395:2014.

269 **395-12-08**

270 τ

271 **mean life**

272 for a radionuclide, time elapsed when the number of atoms or atomic nuclei in the considered
273 state has decreased by a factor 1/e from its initial value

274 Note 1 to entry: For a radionuclide the radioactive mean life is the reciprocal of the decay constant λ , ($\tau = 1/\lambda$).

275 Note 2 to entry: This entry was numbered 395-01-13 in IEC 60050-395:2014).

276 **395-12-09**

277 ε

278 **energy imparted**

279 energy transmitted by ionizing radiation to the matter in a given volume such that:

280 $\varepsilon = R_1 - R_2 + \sum Q$

281 where

282 • R_1 is the radiant energy incident on the volume, i.e. the sum of the energies, excluding
283 rest energies, of all those directly and indirectly ionizing particles which enter the volume,

284 • R_2 is the radiant energy emerging from the volume, i.e. the sum of the energies,
285 excluding rest energies, of all those directly and indirectly ionizing particles which leave
286 the volume, and

- ΣQ is the sum of all changes of the rest mass energy of atomic nuclei and elementary particles in any nuclear transformations which occur in the volume; a positive sign is used when the change is a decrease and a negative sign when the change is an increase

Note 1 to entry: The energy imparted is a stochastic quantity, identical to the integral absorbed dose in that volume, and expressed in joules (J).

Note 2 to entry: This entry was numbered 395-01-34 in IEC 60050-395:2014).

395-12-10

fluence

a measure of the strength of a radiation field

Note 1 to entry: Commonly used without qualification to mean particle fluence.

[SOURCE: IAEA Safety Glossary, 2018]

395-12-11

Ψ

energy fluence

a measure of the energy density of a *radiation* field, defined as:

$$\Psi = \frac{dR}{da}$$

where dR is the *radiation* energy incident on a sphere of cross-sectional area da .

Note 1 to entry: The energy fluence rate $\frac{d\Psi}{dt}$ is denoted by a lower case ψ

Note 2 to entry: This entry was numbered 395-01-17 in IEC 60050-395:2014.

[SOURCE: IAEA Safety Glossary, 2018]

395-12-12

ϕ

particle fluence

a measure of the density of particles in a *radiation* field, defined as:

$$\Phi = \frac{dN}{da}$$

Note 1 to entry: The particle fluence rate $\frac{d\Phi}{dt}$ is denoted by a lower case ϕ .

Note 2 to entry: This entry was numbered 395-01-15 in IEC 60050-395:2014.

[SOURCE: IAEA Safety Glossary, 2018]

395-12-13

K

kerma

the quantity K , defined as:

$$K = \frac{dE_{tr}}{dm},$$

where dE_{tr} is the sum of the initial kinetic energies of all charged ionizing particles liberated by uncharged ionizing particles in a material of mass dm .

Note 1 to entry: Unit: gray (Gy).

324 Note 2 to entry: Originally an acronym for kinetic energy released in matter, but now accepted as a word. is denoted
325 by a lower case ϕ .

326 Note 3 to entry: This entry was numbered 395-01-36 in IEC 60050-395:2014.

327 [SOURCE: IAEA Safety Glossary, 2018]

328 **395-12-14**

329 **exposure**

330 state or condition of being subject to irradiation

331 Note 1 to entry: Exposure should not be used as a synonym for dose. Dose is a measure of the effects of
332 exposure.

333 Note 2 to entry: Exposure to ionizing radiation can be broadly divided into exposure categories according to the
334 status of the individual(s) exposed; into exposure situations according to the circumstances of the exposure; and
335 according to the source of the exposure.

336 Note 3 to entry: See also entry 395-12-15.

337 [SOURCE: IAEA Safety Glossary, 2018]

338 **395-12-15**

339 X

340 **exposure**

341 sum of the electrical charges of all the ions of one sign produced in air by X rays or gamma
342 radiation when all electrons liberated by photons in a suitably small element of volume of air
343 are completely stopped in air, divided by the mass of the air in the volume element

344 Note 1 to entry: Unit: C/kg (in the past, the röntgen (R) was used).

345 Note 2 to entry: See also entry 395-12-14.

346 Note 3 to entry: This entry was numbered 395-01-32 in IEC 60050-395:2014.

347 [SOURCE: IAEA Safety Glossary, 2018]

348 **395-12-16**

349 L_{Δ}

350 **linear energy transfer**

351 **LET**

352 defined generally as:

353
$$L_{\Delta} = \left(\frac{dE}{dl} \right)_{\Delta}$$

354 where dE is the energy lost in traversing distance dl , and Δ is an upper bound on the
355 energy transferred in any single collision.

356 Note 1 to entry: A measure of how, as a function of distance, energy is transferred from *radiation* to the exposed
357 matter. A high value of *linear energy transfer* indicates that energy is deposited within a small distance.

358 Note 2 to entry: L_{∞} (i.e. with $\Delta = \infty$) is termed the **unrestricted linear energy transfer** in defining the *quality*
359 *factor*.

360 Note 3 to entry: L_{Δ} is also known as the **restricted linear collision stopping power**.

361 Note 4 to entry: This entry was numbered 395-01-30 in IEC 60050-395:2014.

362 [SOURCE: IAEA Safety Glossary, 2018]

363 **395-12-17**

364 **dose**

365 a measure of the energy deposited by *radiation* in a target

366 Note 1 to entry: For definitions of the most important such measures, see dose quantities and dose concepts.

367 Note 2 to entry: Absorbed dose, committed equivalent dose, committed effective dose, effective dose, equivalent
368 dose or organ dose, as indicated by the context.

369 [SOURCE: IAEA Safety Glossary, 2018]
370 **395-12-18**

371 **committed dose**

372 committed equivalent dose or committed effective dose

373 [SOURCE: IAEA Safety Glossary, 2018]
374 **395-12-19**

375 **total dose**

376 dose from *external exposure* (3.2) in a given period plus the *committed dose* (3.1.2) from
377 intakes of radionuclides in that same period

378 [SOURCE: IAEA, GSR Part 3, 2014]
379 **395-12-20**

380 **primary limit**

381 limit on the dose or risk to an individual

382 [SOURCE: IAEA Safety Glossary, 2018]
383 **395-12-21**

384 **derived limit**

385 limit on a measurable quantity set, on the basis of a model, such that compliance with this
386 limit may be assumed to ensure compliance with a primary limit

387 [SOURCE: IAEA Safety Glossary, 2018]
388 **395-12-22**

389 **derived air concentration**
390 **DAC**

391 derived limit on the activity concentration in air of a specified radionuclide, calculated such
392 that reference individual, breathing air with constant contamination at the concentration while
393 performing light physical activity for a working year, would receive an intake corresponding to
394 the annual limit on intake for the radionuclide in question

395 Note 1 to entry: The parameter values recommended by the International Commission on Radiological Protection
396 for calculating DACs are a breathing rate of 1,2 m³/h and a working year of 2 000 h.

397 Note 2 to entry: This entry was numbered 395-05-28 in IEC 60050-395:2014.

398 [SOURCE: ISO 12749]
399 **395-12-23**

400 **annual limit on intake,**
401 **ALI**

402 intake by inhalation or ingestion or through the skin of a given radionuclide in a year by
403 reference individual which would result in a committed dose equal to the relevant dose limit

404 Note 1 to entry: The annual limit on intake is expressed in units of activity.

405 Note 2 to entry: This entry was numbered 395-05-25 in IEC 60050-395:2014.

406 [SOURCE: ISO 12749]
407 **395-12-24**

408 **expanded radiation field**

409 hypothetical field where the fluence and its angular and energy distributions have the same
410 value throughout the volume of interest as that in the actual field at the point of interest

411 Note 1 to entry: An expanded field is one in which the fluence and its angular and energy distribution are the same
412 throughout the volume of interest as in the actual field at the point of reference.

413 [SOURCE: IAEA, GSG-7, 2018]

414 **395-12-25**

415 **expanded and aligned radiation field**

416 hypothetical field where the fluence and its energy distributions are the same as an expanded
417 field, but the fluence is unidirectional

418 [SOURCE: IAEA, GSG-7, 2018]

419 **395-12-26**

420 *D*

421 **absorbed dose**

422 fundamental dosimetric quantity *D*, defined as:

423
$$D = \frac{d\bar{\varepsilon}}{dm}$$

424 where $d\bar{\varepsilon}$ is the mean energy imparted by *ionizing radiation* to matter in a volume element
425 and *dm* is the mass of matter in the volume element.

426 Note 1 to entry: The energy can be averaged over any defined volume, the average dose being equal to the total
427 energy imparted in the volume divided by the mass in the volume.

428 Note 2 to entry: Absorbed dose is defined at a point; for the average dose in a tissue or organ, see organ dose.

429 Note 3 to entry: Unit: gray (Gy), equal to 1 J/kg (formerly, the rad was used).

430 Note 4 to entry: This entry was numbered 395-03-112 in IEC 60050-395:2014.

431 [SOURCE: IAEA Safety Glossary, 2018]

432 **395-12-27**

433 *Q*

434 **quality factor**

435 a number by which the absorbed dose in a tissue or organ is multiplied to reflect the relative
436 biological effectiveness of the radiation, the result being the dose equivalent

437 Note 2 to entry: This entry was numbered 395-01-39 in IEC 60050-395:2014.

438 [SOURCE: IAEA Safety Glossary, 2018]

439 **395-12-28**

440 *w_T*

441 **tissue weighting factor**

442 multiplier of the equivalent dose to an tissue or organ, as given by the System of Radiological
443 Protection, used for radiation protection purposes to account for the different sensitivities of
444 different tissues or organs to the induction of stochastic effects of radiation

445 Note 2 to entry: This entry was numbered 395-06-14 in IEC 60050-395:2014.

446 [SOURCE: IAEA, GSR Part 3, 2014]

447 **395-12-29**

448 **dose per unit intake**

449 the committed effective dose resulting from intake, by a specified means (usually ingestion or
450 inhalation), of unit activity of a specified radionuclide in a specified chemical form

451 Note 2 to entry: For *intakes*, synonymous with *dose coefficient*.

452 Note 3 to entry: Measurement unit for dose unit intake is Sv/Bq.

453 [SOURCE: IAEA Safety Glossary, 2018]

454 **395-12-30**

455 **collective dose**

456 the total radiation dose incurred by a population

457 Note 1 to entry: This is the sum of all of the individual doses to members of the population. If the doses continue
458 for longer than a year, then the annual individual doses must also be integrated over time. Unless otherwise
459 specified, the time over which the dose is integrated is infinite; if a finite upper limit is applied to the time
460 integration, the collective dose is described as 'truncated' at that time.

461 Note 2 to entry: Unless otherwise specified, the relevant dose is normally the effective dose (see collective
462 effective dose for the formal definition).

463 Note 3 to entry: Unit: man-sievert (man Sv). This is, strictly, just a sievert, but the unit mansievert is used to
464 distinguish the collective dose from the individual dose which a dosimeter would measure (just as, for example,
465 'person-hours' are used to measure the total effort devoted to a task, as opposed to the elapsed time that would be
466 shown by a clock.

467 Note 4 to entry: Contrasting term: individual dose.

468 Note 5 to entry: This entry was numbered 395-06-08 in IEC 60050-395:2014.

469 [SOURCE: IAEA Safety Glossary, 2018]

470 **395-12-31**

471 **individual dose**

472 the dose incurred by an individual

473 Note 1 to entry: Contrasting term: collective dose.

474 [SOURCE: IAEA Safety Glossary, 2018]

475 **395-12-32**

476 **dose equivalent**

477 the product of the absorbed dose at a point in the tissue or organ and the appropriate quality
478 factor for the type of radiation giving rise to the dose

479 Note 1 to entry: A measure of the dose to a tissue or organ designed to reflect the amount of harm caused.

480 Note 2 to entry: A quantity used by the International Commission on Radiation Units and Measurements in defining
481 the operational quantities ambient dose equivalent, directional dose equivalent and personal dose equivalent (see
482 dose equivalent quantities). The quantity dose equivalent has been superseded for radiation protection purposes
483 by equivalent dose.

484 Note 3 to entry: This entry was numbered 395-05-41 in IEC 60050-395:2014.

485 [SOURCE: IAEA Safety Glossary, 2018]

486 **395-12-33**

487 $H^*(d)$

488 **ambient dose equivalent**

489 the dose equivalent that would be produced by the corresponding aligned and expanded field
490 in the ICRU sphere at a depth d on the radius opposing the direction of the aligned field

491 Note 1 to entry: Parameter defined at a point in a radiation field. Used as a directly measurable proxy (i.e.
492 substitute) for effective dose for use in monitoring of external exposure.

493 Note 2 to entry: The recommended value of d for strongly penetrating radiation is 10 mm.

494 Note 3 to entry: This entry was numbered 395-05-43 in IEC 60050-395:2014.

495 [SOURCE: IAEA Safety Glossary, 2018]

496 **395-12-34**

497 $H'(d, \Omega)$

498 **directional dose equivalent**

499 the dose equivalent that would be produced by the corresponding expanded field in the ICRU
500 sphere at a depth d on a radius in a specified direction Ω

501 Note 1 to entry: Parameter defined at a point in a radiation field. Used as a directly measurable proxy (i.e.
502 substitute) for equivalent dose in the skin for use in monitoring of external exposure.

503 Note 2 to entry: The recommended value of d for weakly penetrating radiation is 0.07 mm.

504 [SOURCE: IAEA Safety Glossary, 2018]

505 **395-12-35**

506 $H_p(d)$

507 **personal dose equivalent**

508 the dose equivalent in soft tissue below a specified point on the body at an appropriate
509 depth d

510 Note 1 to entry: Parameter used in the BSS as a directly measurable proxy (i.e. substitute) for equivalent dose in
511 tissues or organs or (with $d = 10$ mm) for effective dose, in individual monitoring of external exposure.

512 Note 2 to entry: The recommended values of d are 10 mm for strongly penetrating radiation and 0.07 mm for
513 weakly penetrating radiation. 'Soft tissue' is commonly interpreted as the ICRU sphere.

514 Note 3 to entry: Recommended by the International Commission on Radiation Units and Measurements as a
515 simplification of the two separate terms individual dose equivalent, penetrating, $H_p(d)$, and individual dose
516 equivalent, superficial, $H_s(d)$.

517 Note 4 to entry: This entry was numbered 395-05-44 in IEC 60050-395:2014.

518 [SOURCE: IAEA Safety Glossary, 2018]

519 **395-12-36**

520 H_T

521 **equivalent dose**

522 quantity $H_{T,R}$, defined as:

$$523 \quad H_{T,R} = w_R \cdot D_{T,R},$$

524 where $D_{T,R}$ is the absorbed dose delivered by radiation type R averaged over a tissue or
525 organ T and w_R is the radiation weighting factor for radiation type R .

526 Note 1 to entry: When the radiation field is composed of different radiation types with different values of w_R the
527 equivalent dose is: $H_T = \sum w_R \cdot D_{T,R}$

528 Note 2 to entry: The unit of equivalent dose is the sievert (Sv), equal to 1 J/kg. The rem, equal to 0.01 Sv, is
529 sometimes used as a unit of equivalent dose and effective dose.

530 Note 3 to entry: Equivalent dose is a measure of the dose to a tissue or organ designed to reflect the amount of
531 harm caused.

532 Note 4 to entry: Values of equivalent dose to a specified tissue from any type(s) of radiation can be compared
533 directly.

534 [SOURCE: IAEA Safety Glossary, 2018]

535 **395-12-37**

536 *E*

537 **effective dose**

538 the quantity *E*, defined as a summation of the tissue equivalent doses, each multiplied by the
539 appropriate tissue weighting factor:

$$540 \quad E = \sum_T w_T H_T,$$

541 where H_T is the equivalent dose in tissue *T* and w_T is the tissue weighting factor for tissue *T*.
542 From the definition of equivalent dose, it follows that:

$$543 \quad E = \sum_T w_T H_T \sum_R w_R D_{T,R}$$

544 where w_R is the radiation weighting factor for radiation *R* and $D_{T,R}$ is the average absorbed
545 dose in the organ or tissue *T*.

546 Note 1 to entry: The unit of effective dose is the sievert (Sv), equal to 1 J/kg. The rem, equal to 0.01 Sv, is
547 sometimes used as a unit of equivalent dose and effective dose. This should not be used in IAEA publications,
548 except when quoting directly from other publications, in which case the value in sieverts should be added in
549 parentheses.

550 Note 2 to entry: Effective dose is a measure of dose designed to reflect the amount of radiation detriment likely to
551 result from the dose.

552 Note 3 to entry: Values of *effective dose* from any type(s) of *radiation* and mode(s) of *exposure* can be compared
553 directly.

554 [SOURCE: IAEA Safety Glossary, 2018]

555 **395-12-38**

556 **organ dose**

557 the mean absorbed dose D_T in a specified tissue or organ *T* of the human body, given by:

$$558 \quad D_T = \frac{1}{m_T} \int D dm = \frac{\varepsilon_T}{m_T},$$

559 where m_T is the mass of the tissue or organ, *D* is the *absorbed dose* in the mass element *dm*
560 and ε_T is the total energy imparted.

561 Note 1 to entry: Sometimes called tissue dose.

562 [SOURCE: IAEA Safety Glossary, 2018]

563 **395-12-39**

564 **annual dose**

565 The dose due to external exposure in a year plus the committed dose from intakes of
566 radionuclides in that year.

567 Note 1 to entry: This is the individual dose, unless otherwise stated.

568 Note 2 to entry: This is not, in general, the same as the dose actually delivered during the year in question, which
569 would include doses from radionuclides remaining in the body from intakes in previous years, and would exclude
570 doses delivered in future years from intakes of radionuclides during the year in question.

571 [SOURCE: IAEA Safety Glossary, 2018]

572 **395-12-40**

573 **dose rate**

574 dose per unit time

575 [SOURCE: IAEA Safety Glossary, 2018]

576

577 **395-12-41**

578 **dose limit**

579 the value of the effective dose or the equivalent dose to individuals from controlled practices
580 that shall not be exceeded.

581 [SOURCE: IAEA, GSR Part 3, 2014]

582

583 **395-12-42**

584 **reference level**

585 an action level, intervention level, investigation level or recording level.

586 [SOURCE: IAEA Safety Glossary, 2018]

587

588 **395-12-43**

589 **buildup factor**

590 ratio between quantities characterizing, in a given point of a medium crossed by a radiation,
591 the total scattered and non-scattered radiation and the scattered radiation

592 Note 1 to entry: This entry was numbered 395-01-45 in IEC 60050-395:2014.

593

594	Section 395-13 – Radiation exposure and radiation monitoring
595	Section 395-13 – Exposition aux rayonnements et surveillance des
596	rayonnements
597	Раздел 395-13 – Радиационное облучение и радиационный мониторинг
598	395-13-01
599	internal exposure
600	exposure to radiation from a source inside the body
601	Note 1 to entry: This entry was numbered 395-06-03 in IEC 60050-395:2014.
602	[SOURCE: IAEA, GSR Part 3, 2014]
603	
604	395-13-02
605	intake
606	act or process of taking radionuclides into the body by inhalation or ingestion or through the
607	skin
608	[SOURCE: IAEA, GSR Part 3, 2014]
609	
610	395-13-03
611	dose coefficient
612	dose per unit intake of a radioactive substance
613	Note 1 to entry: Sometimes, it is also used to describe other coefficients linking quantities or concentrations of
614	activity to doses or dose rates, such as the external dose rate at a specified distance above a surface with a
615	deposit of a specified activity per unit area of a specified radionuclide.
616	[SOURCE: ISO 12749]
617	
618	395-13-04
619	external exposure
620	exposure to radiation from a source outside the body
621	Note 1 to entry: This entry was numbered 395-06-02 in IEC 60050-395:2014.
622	[SOURCE: IAEA, GSR Part 3, 2014]
623	
624	395-13-05
625	planned exposure situation
626	situation arising from the planned operation of a source radiation or from a planned action
627	that results in an exposure from a source radiation
628	[SOURCE: ISO 12749]
629	
630	395-13-06
631	occupational exposure
632	exposure of workers incurred in the course of their work
633	[SOURCE: IAEA, GSR Part 3, 2014]
634	

635 **395-13-07**636 **medical exposure**

637 exposure incurred by patients for the purposes of medical or dental diagnosis or treatment; by
638 careers and comforters; and by volunteers subject to exposure as part of a programme of
639 biomedical research

640 [SOURCE: ISO 12749]

641

642 **395-13-08**643 **public exposure**

644 exposure incurred by members of the public due to sources in planned exposure situations,
645 emergency exposure situations and existing exposure situations, excluding any occupational
646 exposure or medical exposure

647 Note 1 to entry: This entry was numbered 395-06-07 in IEC 60050-395:2014.

648 [SOURCE: IAEA, GSR Part 3, 2014]

649

650 **395-13-09**651 **existing exposure situation**

652 situation of exposure which already exists when a decision on the need for control needs to
653 be taken

654 [SOURCE: IAEA, GSR Part 3, 2014]

655

656 **395-13-10**657 **potential exposure**

658 exposure that is not expected to be delivered with certainty but that may result from an
659 accident at a source, an event, or sequence of events of a probabilistic nature, including
660 equipment failures and operating errors

661 [ICRP 103]

662

663 **395-13-11**664 **emergency exposure situation**

665 situation of exposure where exposure at an elevated level is inevitable due to unexpected
666 events or needs of important action

667 Note 1 to entry: This may include unplanned exposures resulting directly from the emergency and planned
668 exposures to persons undertaking actions to mitigate the consequences of the emergency.

669 Note 2 to entry: Emergency exposure may be occupational exposure or public exposure.

670 [SOURCE: IAEA Safety Glossary, 2018]

671 **395-13-12**672 **protective action**

673 action for the purposes of avoiding or reducing doses that might otherwise be received in an
674 emergency exposure situation or an existing exposure situation

675 [SOURCE: IAEA Safety Glossary, 2018]

676 **395-13-13**677 **reference level**

678 protective action level

679 an action level, intervention level or investigation level according to radioprotection practices

680 Note 1 to entry: This entry was numbered 395-05-35 in IEC 60050-395:2014.