SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 18090-1:2019

01-november-2019

Radiološka zaščita - Značilnosti referenčnega impulznega sevanja - 1. del: Fotonsko sevanje (ISO/TS 18090-1:2015)

Radiological protection - Characteristics of reference pulsed radiation - Part 1: Photon radiation (ISO/TS 18090-1:2015)

Strahlenschutz - Eigenschaften gepulster Referenzstrahlung - Teil 1: Photonenstrahlung (ISO/TS 18090-1:2015)

Radioprotection - Caractéristiques des champs de rayonnement pulsés de référence - Partie 1: Radiation de photons (ISO/TS 18090-1:2015)

Ta slovenski standard je istoveten z: **CEN ISO/TS 18090-1:2019**

ICS:

13.280	Varstvo pred sevanjem	Radiation protection

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TECHNICAL SPECIFICATION

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CEN ISO/TS 18090-1

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English Version

Radiological protection - Characteristics of reference pulsed radiation - Part 1: Photon radiation (ISO/TS 18090-1:2015)

Radioprotection - Caractéristiques des champs de rayonnement pulsés de référence - Partie 1: Radiation de photons (ISO/TS 18090-1:2015)

Strahlenschutz - Eigenschaften gepulster Referenzstrahlung - Teil 1: Photonenstrahlung (ISO/TS 18090-1:2015)

This Technical Specification (CEN/TS) was approved by CEN on 12 August 2019 for provisional application.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

The text of ISO/TS 18090-1:2015 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 CEN ISO/TS 18090-1:2019 by Technical Committee CEN/TC 430 "Nuclear energy, nuclear technologies, and radiological protection" the secretariat of which is held by AFNOR.

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Endorsement notice

The text of ISO/TS 18090-1:2015 has been approved by CEN as CEN ISO/TS 18090-1:2019 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 18090-1

First edition
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Radiological protection — Characteristics of reference pulsed radiation —

Part 1: Photon radiation

Radioprotection — Caractéristiques des champs de rayonnement pulsés de référence —
Partie 1: Radiation de photons

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Foreword

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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).

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

ISO/TS 18090 consists of the following parts, under the general title *Radiological protection — Characteristics of reference pulsed radiation*:

— *Part 1: Photon radiation*

Introduction

The specification and determination of the special characteristics required for radiation protection dosemeters to be used in pulsed fields of ionizing radiation have been excluded from all International Standards for personal and environmental dosemeters issued so far. Due to the increased use of pulsed radiation in medicine and industry, such International Standards are currently under development. A prerequisite for such International Standards is the availability of the required reference fields for pulsed radiation. This Technical Specification provides the necessary information for such reference fields.

The concept is based on the existing standards for radiation qualities defined in ISO and IEC standards. It only adds the parameters of the pulsed field and gives some guidance for their determination. Therefore, no new radiation qualities are defined, only the link between the parameters for pulsed radiation and the parameters for continuous radiation are given. The main required parameters for pulsed radiation fields are the following:

— radiation pulse duration, t_{pulse};

— radiation pulse air kerma rate, $\dot{K}_{\mathrm{a,pulse}}$;

— air kerma per radiation pulse, $K_{\mathrm{a,pulse}}$;

— for repeated pulses, their repetition frequency, f_{pulse}.

The pulse parameters were determined by using an equivalent trapezoidal radiation pulse, which is equivalent with respect to air kerma and air kerma rate. Reference pulsed radiation is characterized by specified maximum deviations of the given pulse from the equivalent trapezoidal radiation pulse and by requirements concerning the change of radiation quality during the given radiation pulse.

The pulse parameters with respect to the phantom related quantities were determined using conversion coefficients according to ISO 4037 (all parts).

This publication contains information for which worldwide experience is not available at the date of its development. Therefore, it was decided to publish it as a Technical Specification. It is expected that within the following years, experience will be gained and the maintenance of this Technical Specification could lead to an International Standard.