

Radiation protection instrumentation - Spectrometric radiation portal monitors (SRPMs) used for the detection and identification of illicit trafficking of radioactive material

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62484:2021 sisaldab Euroopa standardi EN IEC 62484:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62484:2021 consists of the English text of the European standard EN IEC 62484:2021.
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ICS 13.280

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English Version

Radiation protection instrumentation - Spectrometric radiation
portal monitors (SRPMs) used for the detection and identification
of illicit trafficking of radioactive material
(IEC 62484:2020)

Instrumentation pour la radioprotection - Portiques
spectrométriques de détection des rayonnements (SRPM)
utilisés pour la détection et l'identification du trafic illicite
des matières radioactives
(IEC 62484:2020)

Strahlenschutz-Messgeräte - Auf Spektroskopie basierende
Portalmonitore für den Nachweis und die Identifikation des
unerlaubten Handels mit radioaktiven Stoffen
(IEC 62484:2020)

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European foreword

This document (EN IEC 62484:2021) consists of the text of IEC 62484:2020 prepared by IEC/SC 45B "Radiation protection instrumentation" of IEC/TC 45 "Nuclear instrumentation".

- latest date by which this document has to be (dop) 2022-12-02
implemented at national level by publication of an
identical national standard or by endorsement
- latest date by which the national standards (dow) 2024-12-02
conflicting with this document have to be withdrawn

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IEC 60038	NOTE	Harmonized as EN 60038
IEC 60068-2-11	NOTE	Harmonized as EN IEC 60068-2-11
IEC 60068-2-75	NOTE	Harmonized as EN 60068-2-75
IEC 60846 (series)	NOTE	Harmonized as EN 60846 (series)
IEC 62244	NOTE	Harmonized as EN IEC 62244
IEC 62327	NOTE	Harmonized as EN IEC 62327
IEC 62401	NOTE	Harmonized as EN IEC 62401
IEC 62484	NOTE	Harmonized as EN 62484
IEC 62533	NOTE	Harmonized as EN 62533
IEC 62534	NOTE	Harmonized as EN 62534
IEC 62618	NOTE	Harmonized as EN 62618
IEC 62694	NOTE	Harmonized as EN 62694
IEC 63121	NOTE	Harmonized as EN IEC 63121
ISO 4037-1	NOTE	Harmonized as EN ISO 4037-1
ISO 4037-2	NOTE	Harmonized as EN ISO 4037-2
ISO 4037-3	NOTE	Harmonized as EN ISO 4037-3

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-395	-	International Electrotechnical Vocabulary - Part 395: Nuclear instrumentation: Physical phenomena, basic concepts, instruments, systems, equipment and detectors	-	-
IEC 60068-2-5	-	Environmental testing - Part 2-5: Tests - Test S: Simulated solar radiation at ground level and guidance for solar radiation testing and weathering	EN IEC 60068-2-5	-
IEC 62706	-	Radiation protection instrumentation - Environmental, electromagnetic and mechanical performance requirements	-	-
IEC 62755	-	Radiation protection instrumentation - Data format for radiation instruments used in the detection of illicit trafficking of radioactive materials	-	-
IAEA-TECDOC-1311:	2002	Prevention of the inadvertent movement and illicit trafficking of radioactive materials	-	-

INTERNATIONAL STANDARD

Radiation protection instrumentation – Spectrometric radiation portal monitors (SRPMs) used for the detection and identification of illicit trafficking of radioactive material



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INTERNATIONAL STANDARD

Radiation protection instrumentation – Spectrometric radiation portal monitors (SRPMs) used for the detection and identification of illicit trafficking of radioactive material

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 13.280

ISBN 978-2-8322-8873-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIATION PROTECTION INSTRUMENTATION –
SPECTROMETRIC RADIATION PORTAL MONITORS (SRPMS) USED
FOR THE DETECTION AND IDENTIFICATION OF ILLICIT
TRAFFICKING OF RADIOACTIVE MATERIAL**

FOREWORD

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International Standard IEC 62484 has been prepared by subcommittee 45B: Radiation protection instrumentation, of IEC technical committee 45: Nuclear instrumentation.

This second edition cancels and replaces the first edition of IEC 62484 issued in 2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) title modified;
- b) making the standard consistent with the new standards for detection of illicit trafficking of radioactive material (see the Introduction);
- c) creating unformed functionality test for all environmental, electromagnetic and mechanical tests and a requirement for the coefficient of variation of each nominal mean reading;

- d) reference to IEC 62706 for the environmental, electromagnetic and mechanical test conditions;
- e) adding information regarding climatic exposures.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
45B/969/FDIS	45B/971/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Illicit and inadvertent movement of radioactive materials has become a problem of increasing importance. Radioactive sources out of regulatory control, so-called "orphan sources", have frequently caused serious radiation exposures and widespread contamination. Although illicit trafficking of nuclear and other radioactive materials is not a new phenomenon, concern about a nuclear "black market" has increased in the last few years particularly in view of its terrorist potential.

In response to the technical policy of the International Atomic Energy Agency (IAEA), the World Customs Organization (WCO) and the International Criminal Police Organization (Interpol) related to the detection and identification of special nuclear materials and security trends, nuclear instrumentation companies are developing and manufacturing radiation instrumentation to assist in the detection of illicit movement of radioactive and special nuclear materials. This type of instrumentation is widely used for security purposes at nuclear facilities, border control checkpoints, and international seaports and airports.

However, to ensure that measurement results made at different locations are consistent, it is imperative that radiation instrumentation be designed to rigorous specifications based upon agreed performance requirements stated in international standards. Several IEC standards have been developed to address body-worn, hand-held and portal instruments, see Table 1.

Table 1 – Standards for instrumentation used to detect illicit trafficking of radioactive and nuclear materials

Type of instrumentation	IEC number	Title of the standard
Body-worn	62401	Radiation protection instrumentation – Alarming Personal Radiation Devices (PRD) for detection of illicit trafficking of radioactive material
	62618	Radiation protection instrumentation – Spectroscopy-Based Alarming Personal Radiation Devices (SPRD) for detection of illicit trafficking of radioactive material
	62694	Radiation protection instrumentation – Backpack-type radiation detector (BRD) for detection of illicit trafficking of radioactive material
Portable or hand-held	62327	Radiation protection instrumentation – Hand-held instruments for the detection and identification of radionuclides and for the estimation of ambient dose equivalent rate from photon radiation
	62533	Radiation protection instrumentation – Highly sensitive hand-held instruments for photon detection of radioactive material
	62534	Radiation protection instrumentation – Highly sensitive hand-held instruments for neutron detection of radioactive material
Portal	62244	Radiation protection instrumentation – Installed radiation portal monitors (RPMs) for the detection of illicit trafficking of radioactive and nuclear materials
	62484	Radiation protection instrumentation – Spectrometric radiation portal monitors (SRPMs) used for the detection and identification of illicit trafficking of radioactive material
Mobile	63121	Radiation protection instrumentation – Vehicle-mounted mobile systems for the detection of illicit trafficking of radioactive materials
Data format	62755	Radiation protection instrumentation – Data format for radiation instruments used in the detection of illicit trafficking of radioactive materials