

**SLOVENSKI STANDARD  
SIST EN IEC 62244:2021****01-april-2021****Nadomešča:  
SIST EN 62244:2011**

---

**Instrumenti za zaščito pred sevanjem - Vgrajeni monitorji sevanja (RPM) za odkrivanje nedovoljenega prometa z radioaktivnimi in jedrskimi snovmi (IEC 62244:2019)**

Radiation protection instrumentation - Installed radiation portal monitors (RPMs) for the detection of illicit trafficking of radioactive and nuclear materials (IEC 62244:2019)

Strahlenschutz-Messgeräte - Fest installierte Portalmonitore für den Nachweis des unerlaubten Transports von radioaktiven Stoffen und spaltbarem Nuklearmaterial (IEC 62244:2019)

Instrumentation pour la radioprotection Moniteurs de rayonnement installés (RPMs) pour la détection du trafic illicite des matières radioactives et nucléaires (IEC 62244:2019)

**Ta slovenski standard je istoveten z: EN IEC 62244:2021****ICS:**

13.280 Varstvo pred sevanjem Radiation protection

**SIST EN IEC 62244:2021 en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN IEC 62244:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021>

EUROPEAN STANDARD

**EN IEC 62244**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2021

ICS 13.280

Supersedes EN 62244:2011 and all of its amendments  
and corrigenda (if any)

English Version

**Radiation protection instrumentation - Installed radiation portal  
monitors (RPMs) for the detection of illicit trafficking of  
radioactive and nuclear materials  
(IEC 62244:2019)**

Instrumentation pour la radioprotection - Portiques de  
détection des rayonnements (RPM) installés pour la  
détection du trafic illicite de matières radioactives et  
nucléaires  
(IEC 62244:2019)

Strahlenschutz-Messgeräte - Fest installierte Portalmonitore  
für den Nachweis des unerlaubten Transports von  
radioaktiven Stoffen und spaltbarem Nuklearmaterial  
(IEC 62244:2019)

This European Standard was approved by CENELEC on 2021-01-25. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 62244:2021 (E)****European foreword**

This document (EN IEC 62244:2021) consists of the text of IEC 62244:2019 prepared by SC 45B "Radiation protection instrumentation" of IEC/TC 45 "Nuclear instrumentation".

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-01-25 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-01-25 document have to be withdrawn

This document supersedes EN 62244:2011 and all of its amendments and corrigenda (if any).

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

**Endorsement notice**

The text of the International Standard IEC 62244:2019 was approved by CENELEC as a European Standard without any modification.

**(standards.iteh.ai)**

[SIST EN IEC 62244:2021](https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021)

<https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021>

## 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](http://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 60068-2-11	-	Basic environmental testing procedures Part 2-11: Tests - Test Ka: Salt mist	EN 60068-2-11	-
IEC 61187	-	Electrical and electronic measuring equipment - Documentation	EN 61187	-
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	-	-

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN IEC 62244:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021>



IEC 62244

Edition 2.0 2019-05

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Radiation protection instrumentation – Installed radiation portal monitors (RPMs) for the detection of illicit trafficking of radioactive and nuclear materials**

**Instrumentation pour la radioprotection – Portiques de détection des rayonnements (RPM) installés pour la détection du trafic illicite de matières radioactives et nucléaires**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 13.280

ISBN 978-2-8322-6660-1

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions, abbreviated terms and symbols, quantities and units.....	8
3.1 Terms and definitions.....	8
3.2 Abbreviated terms and symbols .....	10
3.3 Quantities and units.....	10
4 General characteristics and requirements.....	10
4.1 General.....	10
4.1.1 Overview .....	10
4.1.2 Pedestrian .....	11
4.1.3 Road vehicles.....	12
4.1.4 Rail vehicles (includes rail transported containers) .....	12
4.1.5 Conveyor.....	12
4.2 Configuration .....	13
4.3 Indication features .....	14
4.4 Speed control.....	14
4.5 Communication interface.....	14
4.5.1 Requirements .....	14
4.5.2 Method of test.....	15
4.6 Data.....	15
4.6.1 Requirements .....	15
4.6.2 Method of test.....	15
5 General test procedures .....	15
5.1 Statistical fluctuations .....	15
5.2 Standard test conditions .....	16
5.3 Functionality test.....	16
5.3.1 General .....	16
5.3.2 Pre-test measurements.....	16
5.3.3 Intermediate (during test) measurements.....	17
5.3.4 Post-test measurements .....	17
5.4 Reference radiation .....	17
5.4.1 Gamma.....	17
5.4.2 Neutron .....	17
6 Radiation detection requirements .....	18
6.1 False alarms .....	18
6.1.1 Requirements .....	18
6.1.2 Method of test.....	18
6.2 Background effects .....	18
6.2.1 Requirements .....	18
6.2.2 Method of test.....	18
6.3 Gamma radiation detection .....	19
6.3.1 Requirements .....	19
6.3.2 Method of test.....	19
6.4 Neutron radiation detection, if provided.....	19



6.4.1	Requirements .....	19
6.4.2	Method of test.....	19
6.5	Detection of neutron radiation in a high gamma field .....	19
6.5.1	Requirements .....	19
6.5.2	Method of test.....	19
6.6	Over-range indication.....	20
6.6.1	Requirements .....	20
6.6.2	Method of test.....	20
7	Climatic requirements .....	20
7.1	General.....	20
7.2	Ambient temperature.....	20
7.2.1	Requirements .....	20
7.2.2	Method of test.....	20
7.3	Relative humidity .....	21
7.3.1	Requirements .....	21
7.3.2	Method of test.....	21
7.4	Dust and moisture protection .....	21
7.4.1	Requirements .....	21
7.4.2	Method of test – dust .....	21
7.4.3	Method of test – moisture .....	22
7.5	Climatic exposure type test .....	22
7.5.1	Requirements .....	22
7.5.2	Method of test.....	22
8	Mechanical requirements .....	22
8.1	Vibration <a href="https://standards.iteh.ai/catalog/standards/sist/61b7b704-f118-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021">https://standards.iteh.ai/catalog/standards/sist/61b7b704-f118-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021</a> .....	22
8.1.1	Requirements .....	22
8.1.2	Method of test.....	22
8.2	Impact (microphonic) .....	23
8.2.1	Requirements .....	23
8.2.2	Method of test.....	23
9	Electric and electromagnetic requirements .....	23
9.1	Electrostatic Discharge (ESD).....	23
9.1.1	Requirements .....	23
9.1.2	Method of test.....	23
9.2	Radio Frequency (RF).....	23
9.2.1	Requirements .....	23
9.2.2	Method of test.....	23
9.3	Radiated RF emissions .....	24
9.3.1	Requirements .....	24
9.3.2	Method of test.....	24
9.4	Conducted disturbances.....	24
9.4.1	Requirements .....	24
9.4.2	Method of test.....	24
9.5	Surges and oscillatory waves .....	24
9.5.1	Requirements .....	24
9.5.2	Method of test.....	24
9.6	Line voltage and frequency fluctuations .....	25
9.6.1	Requirements .....	25
9.6.2	Method of test.....	25

10	Documentation .....	25
10.1	Operation and maintenance manual .....	25
10.2	Test certificate .....	25
10.3	Declaration of conformity .....	26
Figure 1 – Example of a two-sided system .....		11
Table 1 – Standards for instrumentation used to detect illicit trafficking of radioactive and nuclear materials .....		7
Table 2 – Speed of moving sources .....		12
Table 3 – Evaluation distances for different applications .....		13
Table 4 – Standard test conditions .....		16
Table 5 – Test result analysis .....		17
Table 6 – Summary of performance requirements (informative).....		26
Table 7 – Environmental requirements (informative) .....		27

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

[SIST EN IEC 62244:2021](https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021)

<https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIATION PROTECTION INSTRUMENTATION –  
INSTALLED RADIATION PORTAL MONITORS (RPMS) FOR  
THE DETECTION OF ILLICIT TRAFFICKING OF RADIOACTIVE  
AND NUCLEAR MATERIALS**

## 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62244 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 issued in 2006. This edition constitutes a technical revision.

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

- a) making the standard consistent with the new standards for detection of illicit trafficking of radioactive material (see the Introduction);
- b) creating unformed functionality test for all environmental, electromagnetic and mechanical tests and a requirement for the coefficient of variation of each nominal mean reading;
- c) reference to IEC 62706 for the environmental, electromagnetic and mechanical test conditions;

d) adding information regarding climatic exposures.

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

FDIS	Report on voting
45B/929/FDIS	45B/930/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN IEC 62244:2021](https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021)

<https://standards.iteh.ai/catalog/standards/sist/61b7b704-f418-4e86-b5f0-1f2ff9e8727b/sist-en-iec-62244-2021>