
Instrumenti za zaščito pred sevanjem - Spektroskopski alarmni osebni detektorji sevanja za odkrivanje nedovoljenega prometa z radioaktivnimi snovmi (IEC 62618:2013)

Radiation protection instrumentation - Spectroscopy-based alarming Personal Radiation Detectors (SPRD) for the detection of illicit trafficking of radioactive material (IEC 62618:2013)

Strahlenschutz-Messgeräte - Spektroskopie-basierte alarmgebende persönliche Strahlungsdetektoren für den Nachweis von unerlaubt transportiertem radioaktivem Material (IEC 62618:2013)

Instrumentation pour la radioprotection - Détecteurs individuels spectroscopiques d'alarme aux rayonnements (SPRD) pour la détection du trafic illicite des matières radioactives (IEC 62618:2013)

Ta slovenski standard je istoveten z: EN 62618:2016

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EUROPEAN STANDARD

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October 2016

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English Version

**Radiation protection instrumentation - Spectroscopy-based
alarming Personal Radiation Detectors (SPRD) for the detection
of illicit trafficking of radioactive material
(IEC 62618:2013)**

Instrumentation pour la radioprotection - Détecteurs
individuels spectroscopiques d'alarme aux rayonnements
(SPRD) pour la détection du trafic illicite des matières
radioactives
(IEC 62618:2013)

Strahlenschutz-Messgeräte - Spektroskopie-basierte
alarmgebende persönliche Strahlungsdetektoren für den
Nachweis von unerlaubt transportiertem radioaktivem
Material
(IEC 62618:2013)

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

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

EN 62618:2016 (E)**European foreword**

This document (EN 62618:2016) consists of the text of IEC 62618:2013 prepared by SC 45B “Radiation protection instrumentation” of IEC/TC 45 “Nuclear instrumentation”.

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2017-09-05
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2019-09-05

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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 60050-393	2003	International Electrotechnical Vocabulary - - Part 393: Nuclear instrumentation - Physical phenomena and basic concepts		-
IEC 60050-394	2007	International Electrotechnical Vocabulary - - Part 394: Nuclear instrumentation - Instruments, systems, equipment and detectors		-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
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	-	-
ISO 4037-3	-	X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy - Part 3: Calibration of area and personal dosimeters and the measurement of their response as a function of energy and angle of incidence	-	-
ISO 8529-1	2001	Reference neutron radiations - Part 1: Characteristics and methods of production	-	-
ICRU Report 39	1985	Determination of Dose Equivalents Resulting from External Radiation Sources, International Commission on Radiation Units and measures		
ICRU Report 47	1992	Measurement of Dose Equivalents from External Photon and Electron Radiations, International Commission on Radiation Units and measures		

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Radiation protection instrumentation – Spectroscopy-based alarming Personal Radiation Detectors (SPRD) for the detection of illicit trafficking of radioactive material

Instrumentation pour la radioprotection – Détecteurs individuels spectroscopiques d'alarme aux rayonnements (SPRD) pour la détection du trafic illicite des matières radioactives

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CONTENTS

FOREWORD.....	5
1 Scope and object.....	7
2 Normative references	7
3 Terms, definitions, abbreviations, quantities, and units	8
3.1 Terms and definitions	8
3.2 Abbreviations	11
3.3 Quantities and units	11
3.4 Simplification of terms	12
4 General test procedure	12
4.1 Nature of tests	12
4.2 Reference conditions and standard test conditions	12
4.2.1 General	12
4.2.2 Tests performed under standard test conditions	12
4.2.3 Tests performed with variation of influence quantities	12
4.3 Statistical fluctuations	12
4.4 Radiation field requirements	13
4.4.1 Instrument orientation	13
4.4.2 Traceability	13
4.4.3 Field homogeneity	13
4.4.4 Neutron measurement	13
4.5 Radionuclide identification	13
4.5.1 Identification results	13
4.5.2 Radionuclide categorization	14
4.6 Functionality tests	14
4.6.1 General	14
4.6.2 Photon response	14
4.6.3 Neutron response	14
4.6.4 Field stability and reproducibility	14
4.6.5 Combination of functionality tests and performance tests	15
4.6.6 Performance of functionality tests	15
4.6.7 Spurious indications	15
5 General requirements	15
5.1 General characteristics	15
5.2 Physical configuration	16
5.3 Basic information	16
5.3.1 Documentation supplied	16
5.3.2 Radiation detector	16
5.3.3 Range of measurement – photons	16
5.3.4 Range of measurement – neutrons	16
5.3.5 Range for radionuclide identification	16
5.3.6 Warm-up time	16
5.3.7 Batteries and battery lifetime	16
5.3.8 Explosive atmospheres	17
5.4 Mechanical characteristics	17
5.4.1 Size	17
5.4.2 Mass	17

5.4.3	Case construction	17
5.4.4	Reference point marking	17
5.4.5	Switches	17
5.5	Data output	17
5.6	User interface	18
5.7	Markings	18
5.7.1	Properties and conditions	18
5.7.2	Exterior markings	18
5.8	Alarms	19
5.8.1	Photon source indication alarm	19
5.8.2	Photon safety alarm	19
5.8.3	Neutron source indication alarm	19
5.8.4	Neutron safety alarm	19
5.8.5	Audible indication rate for searching	19
6	Radiation detection requirements	19
6.1	False alarm rate	19
6.1.1	Requirements	19
6.1.2	Method of test	20
6.2	Photon source indication alarm	20
6.2.1	Requirements	20
6.2.2	Method of test	20
6.3	Photon indication – detection of gradually increasing radiation levels	21
6.3.1	Requirements	21
6.3.2	Method of test	21
6.4	Photon safety alarm	21
6.4.1	Requirements	21
6.4.2	Method of test	21
6.5	Neutron source indication alarm	22
6.5.1	Requirements	22
6.5.2	Method of test	22
6.6	Neutron indication and response in the presence of photons	22
6.6.1	Requirements	22
6.6.2	Method of test	22
6.7	Neutron safety alarm	23
6.7.1	Requirements	23
6.7.2	Method of test	23
6.8	Photon dose rate – response	23
6.8.1	Requirements	23
6.8.2	Method of test	23
6.9	Photon dose rate – over range	23
6.9.1	Requirements	23
6.9.2	Method of test	24
6.10	Identification of single radionuclides	24
6.10.1	Requirements	24
6.10.2	Method of test	24
6.11	Identification of unknown radionuclides	24
6.11.1	Requirements	24
6.11.2	Method of test	25
6.12	Simultaneous radionuclide identification	25

6.12.1	Requirements	25
6.12.2	Method of test	25
6.13	Masking.....	25
6.13.1	Requirements	25
6.13.2	Method of test	26
6.14	Range of dose rate for radionuclide identification	26
6.14.1	Requirements	26
6.14.2	Method of test	26
7	Environmental requirements	26
7.1	General requirements	26
7.2	Functionality test	27
7.3	Environmental test matrix	27
7.3.1	General	27
7.3.2	Temperature range	27
7.3.3	Equilibrium time	28
7.3.4	Temperature shock	28
8	Mechanical requirements	28
8.1	General requirements	28
8.2	Functionality test	28
8.3	Mechanical test matrix	28
9	Electromagnetic requirements	29
9.1	General requirements	29
9.2	Functionality test	29
9.3	Electromagnetic test matrix	29
10	Documentation	29
10.1	General	29
10.2	Type test report or certificate	29
10.3	Certificate	30
10.4	Operation and maintenance manuals	30
Annex A	(normative) Test conditions	31
Annex B	(normative) Performance	32
Annex C	(informative) Test geometry	34
Annex D	(informative) SNM categorization	35
Annex E	(informative) List of expected daughters and impurities	36
Bibliography	38
Figure C.1	– Geometry for testing photon source indication alarm	34
Table 1	– Environmental test matrix	27
Table 2	– Mechanical test matrix	28
Table 3	– Electromagnetic test matrix	29
Table A.1	– Reference conditions and standard test conditions	31
Table B.1	– Summary of tests and performance requirements	32
Table D.1	– Categorization of special nuclear material	35
Table E.1	– List of acceptable daughters and expected impurities	37

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIATION PROTECTION INSTRUMENTATION – SPECTROSCOPY-BASED ALARMING PERSONAL RADIATION DETECTORS (SPRD) FOR THE DETECTION OF ILLICIT TRAFFICKING OF RADIOACTIVE MATERIAL

FOREWORD

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International Standard IEC 62618 has been prepared by subcommittee 45B: Radiation protection instrumentation, of IEC technical committee 45: Nuclear instrumentation.

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

FDIS	Report on voting
45B/751/FDIS	45B/758/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.

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.

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RADIATION PROTECTION INSTRUMENTATION – SPECTROSCOPY-BASED ALARMING PERSONAL RADIATION DETECTORS (SPRD) FOR THE DETECTION OF ILLICIT TRAFFICKING OF RADIOACTIVE MATERIAL

1 Scope and object

This International Standard applies to Spectroscopy-based alarming Personal Radiation Detectors (SPRD) which represent a new instrument category between alarming Personal Radiation Devices (PRD) and Radionuclide Identification Devices (RID). SPRDs are advanced PRDs that can be worn on a belt or in a pocket to alert the wearer of the presence of a radiation source. They are not intended for accurate measurement of personal or ambient dose equivalent (rate). In addition to the features of conventional PRDs, SPRDs provide rapid simultaneous search and identification capability to locate and identify radiation sources. They can discriminate innocent alarms such as Naturally Occurring Radioactive Materials (NORM) or medical radionuclides against industrial sources or Special Nuclear Material (SNM). Because of their limited sensitivity, SPRDs cannot replace RIDs. For first responders, SPRDs can be particularly useful for immediate response measures.

This standard does not apply to the performance of radiation protection instrumentation which is covered in IEC 61526 and IEC 62401.

The object of this standard is to establish performance requirements, provide examples of acceptable test methods and to specify general characteristics, general test conditions, radiological, environmental, mechanical and electromagnetic characteristics that are used to determine if an instrument meets the requirements of this standard. The results of tests performed provide information to end users and manufacturers on instrument capability for reliable detection, localization and identification of radiation sources.

Obtaining operating performance that meets or exceeds the specifications as stated in this standard depends upon properly establishing appropriate operating parameters, maintaining calibration, implementing a suitable maintenance program, auditing compliance with quality control requirements and providing proper training for operating personnel.

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.

IEC 60050-393:2003, *International Electrotechnical Vocabulary (IEV) – Part 393: Nuclear instrumentation – Physical phenomena and basic concepts*

IEC 60050-394:2007, *International Electrotechnical Vocabulary (IEV) – Part 394: Nuclear instrumentation – Instruments, systems, equipment and detectors*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 61187, *Electrical and electronic measuring equipment – Documentation*

IEC 62706, *Radiation protection instrumentation – Environmental, electromagnetic and mechanical performance requirements*