

Radiation protection instrumentation -
Vehicle-mounted mobile systems for the detection of
illicit trafficking of radioactive materials

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 63121:2021 sisaldab Euroopa standardi EN IEC 63121:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 63121:2021 consists of the English text of the European standard EN IEC 63121:2021.
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English Version

**Radiation protection instrumentation - Vehicle-mounted mobile
systems for the detection of illicit trafficking of radioactive
materials
(IEC 63121:2020)**

Instrumentation pour la radioprotection - Systèmes mobiles
montés sur véhicules pour la détection du trafic illicite des
matières radioactives
(IEC 63121:2020)

Strahlenschutz-Messgeräte - Fahrzeuggestützte mobile
Systeme zum Aufspüren von unerlaubt transportiertem
radioaktivem Material
(IEC 63121:2020)

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European foreword

This document (EN IEC 63121:2021) consists of the text of IEC 63121:2020 prepared by IEC/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 (dop) 2022-12-02 implemented at national level by publication of an identical national standard or by endorsement
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-11 NOTE Harmonized as EN IEC 60068-2-11

IEC 60086-1 NOTE Harmonized as EN IEC 60086-1

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	2014	International Electrotechnical Vocabulary - Part 395: Nuclear instrumentation: Physical phenomena, basic concepts, instruments, systems, equipment and detectors	-	-
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	-	-

INTERNATIONAL STANDARD



**Radiation protection instrumentation –
Vehicle-mounted mobile systems for the detection of illicit trafficking of
radioactive materials**



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INTERNATIONAL STANDARD



**Radiation protection instrumentation –
Vehicle-mounted mobile systems for the detection of illicit trafficking of
radioactive materials**

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIATION PROTECTION INSTRUMENTATION –
VEHICLE-MOUNTED MOBILE SYSTEMS FOR THE DETECTION
OF ILLICIT TRAFFICKING OF RADIOACTIVE MATERIALS**

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International Standard IEC 63121 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/946/FDIS	45B/955/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.

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- reconfirmed,
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INTRODUCTION

Illicit and inadvertent movement of radioactive materials in the form of radiation sources and contaminated metallurgical scrap 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 problem, concern about a nuclear “black market” has increased, 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, radiation instrumentation companies have developed and manufactured instruments 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.

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 this document. IEC standards have also been developed to address personal radiation detectors, radiation portal monitors, highly sensitive gamma and neutron detection systems, spectrometric personal radiation detectors, and backpack-based radiation detection and identification systems. Those standards are listed below.

Type of instrumentation	IEC number	Title of the standard
Body-worn	62401	Radiation protection instrumentation – Alarming Personal Radiation Devices (PRDs) for the detection of illicit trafficking of radioactive material
	62618	Radiation protection instrumentation – Spectroscopy-Based Alarming Personal Radiation Devices (SPRD) for the detection of illicit trafficking of radioactive material
	62694	Radiation protection instrumentation – Backpack-type radiation detector (BRD) for the 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 – Spectroscopy-based portal monitors used for the detection and identification of illicit trafficking of radioactive material
Mobile system	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