

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Radiation protection instrumentation – Backpack-type radiation detector (BRD)  
for the detection of illicit trafficking of radioactive material**

**Instrumentation pour la radioprotection – Détecteur de rayonnement de type  
sac-à-dos (BRD) pour la détection du trafic illicite des matières radioactives**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIATION PROTECTION INSTRUMENTATION – BACKPACK-TYPE  
RADIATION DETECTOR (BRD) FOR THE DETECTION OF ILLICIT  
TRAFFICKING OF RADIOACTIVE MATERIAL**

## FOREWORD

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International Standard 62694 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/781/FDIS	45B/790/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.

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# RADIATION PROTECTION INSTRUMENTATION – BACKPACK-TYPE RADIATION DETECTOR (BRD) FOR THE DETECTION OF ILLICIT TRAFFICKING OF RADIOACTIVE MATERIAL

## 1 Scope

This International Standard applies to backpack-type radiation detectors (BRDs) that are used for the detection of illicit trafficking of radioactive material. This standard establishes the operational and performance requirements for BRDs. BRDs are portable instruments designed to be worn during use. They may also be used as temporary area monitors in a stand-alone mode.

BRDs detect gamma radiation and may include neutron detection and/or the identification of gamma-ray emitting radionuclides. This standard establishes performance and testing requirements associated with radiation measurements and the expected electrical, mechanical, and environmental conditions while in use.

## 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 (all parts): *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

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 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*

## 3 Terms and definitions, abbreviations, quantities and units

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-393 and IEC 60050-394 apply, as well as the following.

#### 3.1.1

##### **accuracy**

closeness of the agreement between the result of a measurement and the conventionally true value of the measurand