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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 41646-2022

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

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3.1 Terms and Definitions

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is modified to adopt IEC 62694.2014 "Radiation Protection Instruments for the Detection of Illicit Trafficking in Radioactive Materials by Knapsack Radiation Detectors Tester".

This document makes the following structural changes.

--- Divide the content in 4.11 into four three-level expressions (see 4.11.1~4.11.4).

The technical differences between this document and IEC 62694.2014 and their reasons are as follows.

--- Replace IEC 60050-393 and IEC 60050-394 with IEC 60050 (all parts) (see 3.1);

--- Because ISO 4037-3.1999 is obsolete, the value of $h^*K(10)$ is changed from ISO 4037-3.1999 to ISO 4037-3 (see Appendix D).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the performance and tests and electrical, mechanical and environmental conditions of a Backpack Radiation Detector (BRD) related to radiation measurements

requirements.

This document applies to Backpack Radiation Detectors (BRDs) that detect illicit trafficking in radioactive material.

Note. The BRD is a portable instrument designed for backpack use and can also be used independently as a temporary area monitor. BRD is used to detect gamma radiation, its power

Energy may also include neutron detection and/or identification of gamma ray nuclides.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

ISO 4037-3 Radiation Protection Calibrated Dosimeters and Dose Rate Meters and X and Gamma Reference Radiation for Determining Their Photon Energy Response Section 3

Note. GB/T 12162.3-2004 X and Gamma Reference Radiation for Calibrating Dosimeters and Dose Rate Meters and Determining Their Energy Responses Part 3. Local Dosimeters Calibration of dosimeters and personal dosimeters and determination of their energy and angular responses (ISO 4037-3.1999, IDT)

Note. GB/T 2900 (all parts) Electrotechnical terms [IEC 60050 (all parts)]

Note. GB/T 3836.4-2021 Explosive Atmospheres Part 4. Equipment protected by intrinsically safe "i" (IEC 60079-11.2011, MOD)

Note. GB/T 34138-2017 Environmental, Electromagnetic and Mechanical Performance Requirements for Radiation Protection Instruments (IEC 62706.2012, IDT)

IEC 62755 Radiation Protection Instruments Data Format for Illicit Trafficking of Radiation Instruments for Detection of Radioactive Materials (Radiation

3.1 Terms and Definitions

Terms and definitions defined in IEC 60050 (all parts) and the following terms and definitions apply to this document.

3.1.1

accuracy

The degree of agreement between the measurement result and the contractual truth value of the measurand.