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

GB/T 24246-2026

Replacing GB/T 24246-2009

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

辐射防护仪器 用于探测非法贩运放射性物质和核材料的门式辐射监测系统
(English Translation)

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Table of Contents

Preface
1 Scope
2 Normative References
3 Terms and definitions, abbreviations and symbols, quantities and units
3.1 Terms and Definitions
3.2 Abbreviations and Symbols
3.3 Quantity and Units
4.1 General Requirements
4.2 Configuration
4.3 Indicator Function
4.4 Speed Control
4.5 Communication Interface
4.6 Data
5 General test procedures
5.1 Statistical fluctuations
5.2 Standard Test Conditions
5.3 Functional Testing
5.4 Reference Radioactive Source
6 Radiation detection requirements 9.
6.1 False alarms
6.2 Background Influence
6.3 Gamma radiation detection
6.4 Neutron Radiation Detection (if applicable)
6.5 Neutron Detection in High-Gamma Radiation Fields
6.6 Over-range indication
7 Climate and Environmental Requirements
7.2 Ambient temperature
7.3 Relative humidity
7.4 Dustproof and waterproof
7.5 Climate and Environmental Exposure Type Testing
8 Mechanical environment requirements
8.1 Vibration

8.2 Collision (Flutter)	
8.3 Impact	
9 Electrical and electromagnetic compatibility requirements	
9.1 Electrostatic Discharge	
9.2 Radio Frequency Immunity	
9.3 Radiated emission	
9.4 Radio Frequency Conducted Immunity	
9.5 Surge and Ringing Waves	
9.6 Power supply voltage and frequency fluctuations	
9.7 Power frequency magnetic field	
9.8 Voltage Sags and Interruptions	
9.9 Fast Transient	
9.10 Conducted emission	
10.1 Inspection Classification	
10.2 Inspection	
11 Document	
11.1 Operation and Maintenance Manual	
11.2 Test Certificate	
11.3 Compliance Statement	
Appendix A (Informative) Summary of Performance Requirements	
Appendix B (Informative) Summary of Environmental Requirements	

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The terminology has been changed, and abbreviations and symbols, quantities and units have been added (see Chapter 3, Chapter 3 of the 2009 edition);
- b) The classification, detection area, test points, and evaluation distance of the monitoring system were changed, as well as the radioactive sources used in the testing of large vehicles and railway vehicles.

By speed (see 4.1, 5.2.3 and 5.2.4 in the 2009 edition);

c) Added communication interface, data, statistical fluctuation, functional testing, background impact, climate and environmental exposure type testing, power supply voltage and frequency.

Rate fluctuations, documents (see 4.5, 4.6, 5.1, 5.3, 6.2, 7.5, 9.6, and Chapter 11);

d) The ambient background electrons in the standard test conditions were increased (see Table 3);

e) The relative humidity, atmospheric pressure, and ambient gamma background of the standard test conditions were modified (see Table 3, Table 9 of the 2009 edition);

f) Reference conditions were removed, including power supply voltage, power supply frequency, power supply waveform, external electromagnetic field, and external [other parameters] from the standard test conditions.

Magnetic induction (see Table 9 in the 2009 edition);

g) Sensitivity consistency, static detection efficiency, radiation compatibility, cryogenic storage, high-temperature storage, electrical safety, and transportation environment have been removed.

Adaptability, marking, packaging, transport and storage (see 5.5.2, 5.5.3, 5.3, 6.6.2, 6.6.3, 6.9.2, 5.8.2, 2009 edition).

6.9.3, Chapter 8);

h) Performance requirements, test methods, and test sources have been changed (see Chapter 6, 5.5 of the 2009 edition);

i) Changed climatic environmental requirements, mechanical environmental requirements for vibration, shock and flutter, electromagnetic compatibility requirements for electrostatic discharge and radio frequency immunity.

Radio frequency conducted immunity, surge and ringing (see Chapters 7, 8, and 9; 5.8.1, 5.8.3, and 5.7 in the 2009 edition).

6.9.2, 6.9.4, 6.8).

This document is modified to adopt IEC 62244:2019 "Radiation protection instruments for detecting illicit transport of radioactive and nuclear materials - Fixed radiation gates".

Household Monitoring System (RPMS).

---Table 1 corresponds to Table 2 in IEC 62244:2019;

---Table 2 corresponds to Table 3 in IEC 62244:2019;

---Table 3 corresponds to Table 4 in IEC 62244:2019;

---Table 4 corresponds to Table 5 in IEC 62244:2019;

---Table A.1 corresponds to Table 6 in IEC 62244:2019;

---Table B.1 corresponds to Table 7 in IEC 62244:2019.

The technical differences between this document and IEC 62244:2019, and the reasons therefor, are as follows.

a) Using normatively referenced GB/T 2423.17, GB/T 2423.24, GB/T 2900.97, GB/T 16511, GB/T 31836, GB/T 34138 replaces IEC 60068-2-11, IEC 60068-2-5, IEC 60050-395, and IEC 61187, respectively.

IEC 62484 and IEC 62706 provide operability;

b) Normative references GB/T 2423.5, GB/T 2423.55, GB/T 17799.2, and GB 17799.4 have been added, corresponding to this document.

The test items and definitions added to the document;

c) The definition of "nuclear material" has been changed (see 3.1.4) to align with Chinese laws and regulations;

d) Three test points were added on each side of the center of the detection area in Figure 1 and Table 1 (a total of six test points were added), clarifying the location of the six points.

To more comprehensively detect the detection area, modifications were made to sections 6.3 and 6.4 accordingly.

e) The ambient temperature range in the standard test conditions has been changed (see Table 3), from 18°C~25°C to 15°C~35°C, which is easier to implement.

Test environment;

f) The representation of the gamma-ray source activity range has been changed (see 5.4.1), replacing the relative deviation representation "(-0%, 20%)" with a more specific expression.

The range of body activity values is more intuitive and clear;

h) Changes were made to "gamma radiation detection" and "neutron radiation detection (if applicable)" (see 6.3, 6.4), as well as Figure 1 and Table 2, and six experiments were added.

The location of the six points is clearly defined to more comprehensively detect the detection area and improve operability;

i) The statement in "General Requirements" (see 7.1) that "Monitoring systems designed for controlled environments (such as indoors) do not need to be designed for climatic conditions" has been removed.

The term "test" is related to clause 7.2.1, which states that "for systems designed for use in