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

GB/T 34140-2017

**Radiation protection instrumentation -- Highly sensitive
hand-held instruments for neutron detection of radioactive
material**

辐射防护仪器 用于放射性物质中子探测的高灵敏手持式仪器

(English Translation)

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Table of Contents

Foreword	
1 Scope	
2 Normative references	
3 Terms and definitions	
3.1 Overview	
3.2 Definition	
3.3 Volume and unit	
4 General requirements	
4.1 General characteristics	
4.2 Physical Structure	
4.3 Basic information	
4.4 Working mode	
4.5 Maintenance/Calibration	
4.6 Communication Interface	
4.7 User Interface	
4.8 Logo	
4.9 Power	
4.10 Switch protection	
4.11 Display unit	
4.12 Effective measuring range	
4.13 Alarm	
4.14 Explosive air	
4.15 Indicator Features	
5 General test methods	
5.1 Experimental nature	
5.2 Reference conditions and standard test conditions	
5.3 Statistics Fluctuation	
6 Radiation test	
6.1 Source prompt false alarm rate	
6.2 Source alarm and response time	
6.3 Neutron Alarms in the Presence of Photons	
6.4 Neutron alarm overload characteristics	

6.5	Personal Protection Alarm
6.6	Preheat
7	Environmental, mechanical and electrical performance requirements
7.1	Temperature
7.2	Humidity
7.3	Cold start
7.4	Dust and waterproof test
7.5	Machinery
7.6	Collision (flutter)
7.7	Battery Requirements
7.8	Electrostatic discharge test
7.9	Radio Frequency (RF)
7.10	RF radiation emission
7.11	Conduct Harassment
7.12	Magnetic Field
8	File
8.1	Overview
8.2	Type Test Report
8.3	Certificate of Compliance
8.4	Operation and Maintenance Manual
	References

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method identical with IEC 62534:2010 "Radiation protection instrumentation for high sensitivity neutron detection of radioactive material Handheld instrument. " the documents of our country that have consistent correspondence with the international standards that are normative references in this standard are as follows.

--- GB/T 13161-2015 Radiation protection instrumentation for measuring X, gamma, neutron and beta radiation dose equivalent Hp (10) and Hp (0.07) Direct Reading Personal Dose Equivalent (IEC 61526:2010, IDT);

Electromagnetic compatibility test and measurement techniques Electrostatic discharge immunity test (IEC 61000-4-2).

2001, IDT).

This standard made the following editorial changes.

--- Table 1 "relative humidity" and "atmospheric pressure" footnote a to b.

This standard proposed by China National Nuclear Corporation.

This standard by the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) centralized.

This standard was drafted unit.Nuclear Industrial Standardization Institute, Xiamen City, metrological testing institute, Xiamen Minya Zhongmin Electronic Technology Co., Ltd..

1 Scope

This standard applies to the detection and positioning of neutron emission of radioactive substances handheld devices. These highly sensitive instruments are designed primarily for the purpose Used to detect subtle changes within the normal background caused by the illicit trafficking or unintentional transfer of radioactive material. Highly sensitive instruments allow Scans large items, such as vehicles or containers. In order to monitor checkpoints or hazardous areas, these instruments are also allowed to be fixed or temporarily fixed Set unattended use. The instruments specified in this standard also provide methods of detecting photon radiation for personal protection.

This standard does not apply to GB/T 14318-2008 and IEC 61526 radiation protection equipment involved in the performance.

The purpose of this standard is to establish performance requirements, provide examples of acceptable test methods and provide general characteristics, general test conditions, radiation Characteristics, electrical safety and environmental conditions, used to determine whether the instrument meets the requirements of this standard.

The test results provide government agencies and other users with information on the ability of radiation detectors to reliably detect neutron sources.

Equipment to meet or exceed the technical requirements of this standard performance requirements depend on the correct establishment of appropriate working parameters, the implementation of school Perform appropriate response testing and maintenance procedures, review conforming quality requirements, and provide formal training to operators.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2900.81-2008 Electrotechnical terminology Nuclear physics and basic concepts (IEC 60050-393:2003, IDT) GB/T 2900.82-2008 Electrotechnical terminology Instruments
Instruments, systems, equipment and detectors (IEC 60050-394:2007, IDT) GB/T
4208-2008 enclosure protection (IP code) (IEC 60529:2001, IDT) GB/T 14055.1-2008
Neutron reference radiation - Part 1. Radiation characteristics and methods of production
(ISO 8529-1:2001, IDT) GB/T 14318-2008 Radiation protection instrumentation around the
neutron dose equivalent (rate) instrument (IEC 61005:2003, IDT) IEC 61000-4-2:2008
Electromagnetic compatibility (EMC) Part 4-2. Testing and measurement techniques
Electrostatic discharge immunity test [Electromagnetic compatibility (EMC) -Part 4-2.
Testing and measurement techniques-Electrostaticdischargeimmunitytest] IEC 61526:2005
Radiation protection instrumentation measures individual doses equivalent X, gamma,
neutron and beta radiation Hp (10) and Hp (0.07) Reading personal dose equivalent meter

3.1 Overview

The following terms and definitions apply to this document.

NOTE Radiation levels and dosimetry terms are given in GB/T 2900.81-2008 and GB/T 2900.82-2008.