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

GB/T 29789-2013

**Radiation protection instrumentation -- Equipment for sampling
and monitoring radioactive noble gases**

辐射防护仪器 放射性惰性气体取样和监测设备

(English Translation)

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Foreword

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

This standard uses the translation method identical with IEC 62302:2007 "Radiation protection instrumentation radioactive noble gas sampling and monitoring equipment." Consistency correspondence with international standards in this standard references of the following documents.

- GB/T 2423 (all parts), Environmental testing [IEC 60068 (all parts)].
- GB/T 2423.5-1995 Environmental testing for electric and electronic products Part 2. Test methods Test Ea and guidance. red Hit (IEC 60068-2-27. 1987, IDT);
- GB/T 2423.34-2005 Environmental testing for electric and electronic products Part 2. Test methods - Test Z/AD. Wen Degrees/humidity cyclic test (IEC 60068-2-38. 1974, IDT).
- GB/T 17626 (all parts), electromagnetic compatibility test and measurement technology [61000-4 (all parts) IEC] - GB/T 17626.2-2006 Electromagnetic compatibility - Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2:2001, IDT);
- GB/T 17626.3-2006 Electromagnetic compatibility - Testing and measurement techniques RFEMS test (IEC 61000-4-3:2002, IDT);
- GB/T 17626.4-2008 Electromagnetic compatibility - Testing and measurement techniques - Electrical fast transient burst immunity test (IEC 61000-4-4:2004, IDT);
- GB/T 17626.5-2008 Electromagnetic compatibility - Testing and measurement techniques - Surge (impact) immunity test (IEC 61000-4-5:2005, IDT);
- GB/T 17626.11-2008 Electromagnetic compatibility Testing and measurement techniques - Voltage dips, short interruptions and voltage variations Immunity test (IEC 61000-4-11:2004, IDT);

- GB/T 17626.12-1998 electromagnetic compatibility test and measurement techniques - Oscillatory waves immunity test (IEC 61000-4-12:1995, IDT).

--- GB 17799.4-2001 Electromagnetic compatibility - Generic standards Emission standard for industrial environments (IEC 61000-6-4:1997, IDT).

The standard IEC 62302:2007 made the following editorial changes.

--- Will be in "2 Normative references" existing national standards and industry standards relevant international standards to our criteria, taking to the practical application of the standard to IEC 61000-4 (all parts) and IEC 61000-6-4 instead of IEC 61000 (all parts);

--- 3.18 "Maintenance Test" by definition should be "periodic tests";

--- 4.7 in the first paragraph delete "is also used by other units in the United States";

--- 8.6, 9.7, Tables 3 and 4 AC power frequency range to retain only the contents of the current use of 47Hz ~ 51Hz;

--- 9.3.2 of "2%" add "(k = 2)";

--- 10.8.2 of IEC 61000-4-2 (electrostatic discharge immunity test) clearly erroneous and should be changed to IEC 61000-6-4;

--- Table 3, "AC voltage" terms of reference "7.3" is a clerical error changed to "8.5." the standard proposed by the Defense Science and Technology Industrial Development Bureau.

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

This standard was drafted. Shenzhen Academy of Metrology and Quality Inspection, Shenzhen University.

1 Scope

This standard applies to the workplace, released into the environment in gaseous effluents and the environment itself radioactive noble gas sampling and continuous measurement devices. Monitoring requirements is a continuous and real-time measurement process. This standard includes the sampling process or for real retrospective Laboratory analysis of samples of the acquisition process.

The purpose of this standard is necessary to establish general requirements for radioactive noble gases given sampling and monitoring feasible method and apparatus for real example. This standard is the current standard GB/T 7165.3-2008 complete expansion, which applies only in gaseous effluents can be permanently installed Portable and removable radioactive noble gas sampling and monitoring equipment, and expand the coverage of this standard to include monitoring radioactive noble gases all situations can

cause radiological hazards. Device is designed in normal operating conditions and in emergency conditions (including accidents and incidents during After) working. According to the characteristics of emergency conditions, you may need to install specially designed for normal operating conditions and equipment earmarked for emergency workers Other equipment condition design.

This standard applies to provide the following functionality radioactive noble gas sampler and monitor.

- In the workplace, gaseous emissions and environmental point of discharge flow measuring radioactive noble gas, the volume of activity and over time Variety;
- During normal operating conditions and in emergency conditions (including accident and post-accident period) were measured;
- When the concentration exceeds a preset volume or activity or preset total emission activity, start the alarm;
- To determine the total activity of the gas emissions within a given time range provided different exhaust gas mixture composition information and (or);
- Air or gas sampling and retrospective analysis of an inert gas.

Containing the isotope ^{219}Rn , ^{220}Rn and ^{222}Rn radon is a naturally occurring radioactive noble gases, this standard does not consider the measure it.

The presence of radon and its progeny may significantly interfere with the correct measurement of the standard covered by an inert gas.

This standard specifies the general characteristics of the device, general test methods, mechanical properties, electrical and electronic properties, radiation characteristics, security features, and Environmental characteristics and the proper identification and a certificate. If the device as part of a continuous nuclear facilities radiation monitoring central control system, may those systems have additional requirements and other relevant standards.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 2900.81-2008 Electrotechnical terminology Nuclear Instruments Physical phenomena and basic concepts (IEC 60050-393:2003, IDT) GB/T 7165.1-2005 gaseous effluents (radioactive) activity continuous monitoring equipment - Part 1. General requirements (IEC 60761-1:2002, IDT) GB/T 7165.3-2008 gaseous effluents (radioactive) activity continuous monitoring equipment - Part 3. radioactive noble gas monitoring Specific requirements (IEC

60761-3:2002, IDT) GB/T 16511-1996 Electrical and electronic measuring equipment - Documentation (IEC 61187:1993, IDT) GB 17799.4-2012 Electromagnetic compatibility - Generic emission standard for industrial environments (IEC 61000-6-4:2011, IDT) IEC 60068 (all parts), Environmental testing (Environmentaltesting) IEC 61000-4 (all parts) electromagnetic compatibility (EMC) Part 4. Testing and measurement techniques (Electromagneticcom-