

ICS 13.280
CCS F 84



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

GB/T 30150-2013

**Radiation protection instrumentation -- Equipment for
monitoring airborne tritium**

辐射防护仪器 气载氚监测设备

(English Translation)

Issued on: December 17, 2013

Implemented on: August 1, 2014

Issued by: Standardization Administration of China

Table of Contents

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Classification tritium monitoring equipment

4.1 General Design Elements

4.2 Detection Methods

4.3 6 easy decontamination

4.4 Explosive mixture

4.5 Corrosion

6 4.6 Reliability

Foreword

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

This standard uses the translation method identical with IEC 62303:2008 "Radiation protection instrumentation airborne tritium 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. Shock (IEC 60068-2-27. 1987, IDT);

--- GB/T 2423.34-2012 Environmental testing for electric and electronic products Part 2. Test methods - Test Z/AD. temperature/wet of the combined cycle test (IEC 60068-2-38:2009, IDT);

--- GB/T 7165.5-2008 gaseous effluents (radioactive) activity continuous monitoring equipment - Part 5. Tritium monitor special Requirements (IEC 60761-5:2002, IDT);

--- GB/T 17626 (all parts), electromagnetic compatibility test and measurement technology [IEC 61000 (all parts)];

--- 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 resistance Interference 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 17799.4-2012 Electromagnetic compatibility - Generic standards Emission standard for industrial environments (IEC 61000-6-4:2011, IDT).

The standard IEC 62303:2008 made the following editorial changes.

--- Delete foreword international standards;

--- According to Chinese customs for some formatting has been modified (for example. Note plus behind ".", followed by a series Item Description will be. "" Replaced by ";");

--- Use the decimal symbol instead of the international standard decimal symbol ",. ", ";

--- Will be in "2 Normative references" existing national standards corresponding to international standards Our standards are not deleted in the text Appears IEC 60761-1 and ISO 10012:2003;

--- "4.1 General design features" no content, increase the "general design features see 4.2 to 4.13";

--- 7.7.3.2 in the first paragraph "10μGy/h ± 10%" changed to "10μGy/h (1 ± 10%)";

--- 8.5.1, 8.5.2, 9.7.1, 9.7.2, Tables 3 and 4 AC power frequency range and keep only change our current use 47Hz ~ 51Hz;

--- 9.3.3 "2%" add "(k = 2)";

--- Table 3, "AC Power Change" is a clerical error, was changed to "the AC power frequency." this standard by the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) and focal points.

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

Shenzhen People's Hospital.

1 Scope

This standard specifies the general characteristics, general test methods, mechanical properties, electrical and electronic properties, radiation characteristics, security features and special environment Proper identification and a certificate of property and equipment. 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.

This standard applies to the workplace, released into the environment in gaseous exhaust stream and the environment itself tritium sampling and continuous measurements Equipment, and is suitable for fixed, portable and mobile devices.

Purpose of this standard is to establish general requirements necessary given for continuous monitoring of airborne tritium and/or feasible method and apparatus for sampling Instance. This standard is the complete expansion of existing standards IEC 60761-5, which only applies to the gaseous exhaust stream sampling and monitoring provided tritium Equipment, and this standard to expand coverage to include monitoring of radioactive tritium may cause hazards for all occasions. Device is designed in normal operating conditions and work in emergency conditions (including accident and post-accident period) under. According to the characteristics of emergency conditions, you may need to install dedicated to normal Operating conditions and equipment specially designed for other equipment designed for emergency conditions.

This standard applies to features capable of tritium and tritium monitor sampler.

- In the workplace, gaseous emissions and environmental point of discharge flow measuring volume activity of tritium and its changes over time;
- When the tritium volume activity exceeds the preset or preset concentration or total emissions of tritium activity, start the alarm;
- Determine the total discharge activity within the given time frame of tritium;
- Air or gas containing tritium sampling and analysis.

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 2900.82-2008 Electrotechnical terminology nuclear instrumentation equipment, systems, equipment and detectors (IEC

60050-394:2007, IDT) GB/T 16511-1996 electrical and electronic measuring instruments accompanying documents (IEC 61187:1993, IDT) IEC 60068 (all parts), Environmental testing (Environmental testing) IEC 60068-2-27 Environmental testing Part 2-27. Tests - Test Ea and guidance. Shock (Environmental testing - Part 2-27. Tests - Test Ea and guidance. Shock) IEC 60068-2-38 Environmental testing - Part 2-38. Tests - Test Z/AD. Composite temperature/humidity cycle test (Environmental testing - Part 2-38. Tests - Test Z/AD. Composite temperature/humidity cycle test) IEC 60761-5 gaseous effluents (radioactive) activity continuous monitoring equipment - Part 5. Particular requirements for tritium monitors (Equipment for continuous monitoring of radioactivity in gaseous effluents - Part 5. Specific requirements for tritium monitors) IEC 61000 (all parts), Electromagnetic Compatibility [Electromagnetic compatibility (EMC)] IEC 61000-4-2 Electromagnetic compatibility - Part 4-2. Testing and measurement techniques - Electrostatic discharge test [Electromagnetic compatibility (EMC) - Part 4-2. Testing and measurement techniques - Electrostatic discharge immunity test]