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

GB/T 13980-2008

Replacing GB/T 13980-1992

Density gauges utilizing ionizing radiation

电离辐射密度计

(English Translation)

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Table of Contents

Introduction

1 Scope

2 Normative references

3 Terms and definitions

3.1 Device-related terms and definitions

3.2 Response time related terms and definitions

3.3 Definitions related to the measurement and control function

4 Products

4.1 By 7 points used by radiation

4.2 Press probe mounting points

5 Technical requirements

5.1 General requirements

5.2 Appearance

5.3 Basic performance

5.4 Emitter

5.5 Sealing requirements

5.6 Environmental conditions

Foreword

This standard corresponds to IEC 60692:1999 "densitometer definitions and test methods for the use of ionizing radiation", and IEC 60692:1999 Non-equivalent.

This standard replaces GB/T 13980-1992 "ionizing radiation densitometer." the main difference compared with the standard GB/T 13980-1992 as follows.

--- Normative references, the latest version of the standard references appropriate;

--- Terms and definitions, according to IEC 60692:1999 "definition" of the preparation, and consistent with GB/T 7352;

---skills requirement.

- adjust the technical requirements of the order of items, according to the appearance, the basic performance requirements of the order and working atmosphere Conditions and power supply conditions and their impact on performance density meter separate statements (Chapter 5);

- adjust and supplement some indicators technical requirements (Chapter 5);
- atmospheric conditions and working conditions of the power supply according to IEC 60692:1999 Annex A are divided into I, II, III three groups 1, 2 and three levels (5.1.2);
- Increase AC power supply frequency, electromagnetic environmental conditions, resistance to vibration, shock and other environmental suitability of packaging and transportation requirements;
- Safety requirements (including electrical and radiation safety) and the test methods according to GB/T 19661-2005 prepare and give Specific parameters (5.7);
- Increase the diagnostic features and reliability requirements (5.8,5.9);
- experiment method.
- supplementary part of the test methods, such as electromagnetic environmental testing, and other sources to make it correspond with the technical requirements;
- rewrite part of the test methods, mostly according to IEC 60692:1999 The "test" to prepare, but the climate and environmental testing machine Environment Press GB/T 8993-1998 prepared while electromagnetic environment according to GB/T 11684-2003 write;
- Inspection rules, supplementary classification test, refine the test item list (Chapter 7);
- Additions accompanying document (Chapter 8);
- Increase in Appendix A (Informative Appendix), IEC 60692 standard is not used to this. Test methods for 1999 included in Appendix A.

Appendix A of this standard is the data appendix.

The standard proposed by China National Nuclear Corporation.

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

This standard was drafted. Shenzhen Academy of Metrology and Quality Inspection, Shanghai Industrial Automation Instrument Research Institute, Institute of Nuclear Industry Standardization.

1 Scope

This standard specifies the ionizing radiation densitometer product classification, technical requirements, test methods, inspection rules and signs, packaging, transportation, storage Memory and accompanying documents.

This standard applies to the use of ionizing radiation the average density of matter measuring ionizing radiation densitometer (hereinafter referred densitometer).

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2423.23-1995 Environmental testing for electric and electronic products Test Q. Sealing GB/T 3836.1 Electrical apparatus for explosive atmospheres - Part 1. General requirements (GB/T 3836.1-2000, eqv IEC 60079-0:1998) GB/T 3836.2 Electrical apparatus for explosive gas atmospheres - Part 2. flameproof "d" (GB/T 3836.2-2000, eqv IEC 60079-1:1990) GB/T 3836.4 Electrical apparatus for explosive gas atmospheres Part 4. Intrinsic safety "i" (GB/T 3836.4-2000, eqv IEC 60079-11:1999) GB/T 4075-2003 Sealed radioactive sources - General requirements and classification (ISO 2919:1999, MOD) GB/T 4208-1993 shell protection (IP code) (eqv IEC 529. 1989) GB/T 8993-1998 nuclear instruments - Environmental conditions and testing procedures GB/T 10257-2001 nuclear instruments and nuclear radiation detectors Quality inspection rule GB/T 11684-2003 nuclear instrumentation and test methods for electromagnetic environmental conditions GB 11806 Regulations for the Safe Transport of Radioactive Substances (GB 11806-2004, IAEA No. TS-R-1.1996/2003, IDT) GB/T 15849 sealed radioactive sources leak test method (GB/T 15849-1995, eqv ISO 9978:1992) GB/T 17626 (all parts), electromagnetic compatibility test and measurement technology (idt IEC 61000-4) GB/T 18271.3-2000 Process measurement and control devices - General methods and procedures for evaluating performance - Part 3. effects of influence quantities Test (idt IEC 61298-3:1998) GB/T 18871-2002 ionizing radiation protection and safety of radiation sources basic standards GB/T 19661.1-2005 nuclear equipment and systems - Safety requirements - Part 1. General requirements GB/T 19661.2-2005 nuclear equipment and systems - Safety requirements - Part 2. Radiation protection requirements (IEC 60405:2003, Nu-clear instrumentation-Constructional requirements and classification of radiometric gauges, MOD) EJ/T 1059 Nuclear instrumentation packaging General technical requirements

3 Terms and Definitions

The following terms and definitions apply to this standard.

3.1 Device-related terms and definitions

3.1.1

With ionizing radiation, and designed to make use of ionizing radiation backscatter or attenuation change, the measurement substance or substances uniformly mixed