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

GB/T 14055.2-2012

Replacing GB/T 17437-1998

**Reference neutron radiations -- Part 2: Calibration
fundamentals of radiation protection devices related to the
basic quantities characterizing the radiation field**

中子参考辐射 第2部分：与表征辐射场基本量相关的辐射防护仪表校准基础
(English Translation)

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Foreword

GB/T 14055 "Reference neutron radiation" is divided into three parts.

- Part 1. Radiation characteristics and production method;
- Part 2. Characterization of the radiation field and a substantial amount of the associated radiation protection instrumentation calibration basis;
- Part 3. place dosimeters and personal dosimeters and determine the calibration energy and angular response.

This section GB/T 14055 Part 2.

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

This Part replaces GB /17437-1998 "method for determining neutron radiation protection

measuring instruments calibrated and its response" T. Headquarters Points and GB/T 17437-1998 major differences in content are.

- a) The name of this section as modified according to a unified series of standards reference neutron radiation;
- b) cancel the original standard Chapter 3, "covered by this standard instrument";
- c) Terms and definitions canceled the original standard on angular response, join hands to expand radiation field, strongly penetrating radiation, the maximum dose equivalent shell, by reference to instruments and monitoring instruments entries conventional true value increases the amount of dose equivalent, fluence, test point, the reference point and effective in Entries heart;
- d) an increase in the initial measurement of the corresponding formula and its detailed discussion;
- e) increase in spherical geometry correction source and gives a typical example;
- f) Data analysis in the original standard polynomial method to expand, given the more general universal fitting, intended to simplify and increase legitimate;
- g) cancel the original standard Appendix A "to test the physical properties of a schematic form", the original Standard Appendix B "recommendation on the phantom" Load Part 1, section discussed in Part 3 of the standard, the original standard Appendix C "source strength characteristics of the two corner radionuclide neutron source" Load Standard Points discussed;
- h) the standard layout of the original structure has been a major adjustment, according to national standard template format changes.

This section uses the translation method identical with ISO 8529-2:2000 "neutron reference radiation - Part 2. Characterization of the radiation field and a substantial amount of phase Radiation protection instrumentation calibration off base. " this part of the National Nuclear Energy Standardization Technical Committee (SAC/TC58) centralized.

This section drafted by. China Institute of Atomic Energy.

1 Scope

This section provides the neutron source neutron field GB/T 14055.1-2008 given generated implement radiation protection instrument calibration conditions Approach, with particular emphasis on external influences amendments (eg. Correction of the wall from the calibration laboratory of neutron scattering).

Due to the wide application of radionuclide neutron sources, this section focuses on radionuclide neutron source calibration (Chapter 4 ~ 6 Chapter), and for using the

accelerator and reactor calibration (8.2 and 8.3) only briefly described.

ISO 8529-3 gives the conversion factors and the general rules and methods for calibration.

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 14055.1-2008 neutron reference radiation - Part 1. Radiation characteristics and production method (ISO 8529-1:2001, IDT) ISO 8529-3:1998 Reference neutron radiation - Part 3. Location and personal dosimeter calibration and determining the neutron energy response Relationship between the amount and angle of incidence (Reference neutron radiation-Part 3. Calibration area and personal dosimeters and determination of response as a function of energy and angle of incidence) ISO 12789 reference neutron radiation - simulated workplace neutron field characteristics and the production method (Reference neutron radiation-Characteristics and methods of production of simulated workplace neutron fields) no. ICRU33 Report. 1980 Radiation Quantities and units (Radiation quantities and units) no. ICRU60 Report. 1998 the basic amount of ionizing radiation and units (Fundamental quantities and units for ionizing radiation) BIPM/IEC/IFCC/ISO/IUPAC/IUPAP/OIML. 1993 General measurement terms and definitions (International vocabulary of basic and general terms in metrology)

3 Terms and Definitions

No. ICRU33 Report. 1980, Report No. ICRU60. 1998 and BIPM/IEC/IFCC/ISO/IUPAC/IUPAP/OIML.

Defined in 1993 and the following terms and definitions apply to this document.

Appendix A lists the symbols used in this part.

Reading

The amount of the value of the instrument indication.

The amount of conventional true value conventional true value of a quantity Best estimates are measured.

Note: In general that, for a given purpose conventional true value difference is small enough to be close to the true value.