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

GB/T 4835.1-2012

Replacing GB/T 4835-2008

**Radiation protection instrumentation -- Ambient and/or directional dose
equivalent (rate) meters and/or monitors for beta, X and gamma radiation -- Part
1: Portable workplace and environmental meters and monitors**

(English Translation)

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Foreword

GB/T 4835 "Radiation protection instrumentation beta, X and gamma radiation surrounding and/or directional dose equivalent (rate) meters and/or monitors" is divided into two section.

--- Part 1. Portable workplace and environmental meters and monitors;

--- Part 2. portable emergency radiation protection High range beta and photon dose and dose rate meter.

This section GB/T 14835 Part of.

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

This Part replaces GB/T 4835-2008 "Radiation protection instrumentation beta, X and gamma radiation surrounding and/or directional dose equivalent (rate) meters and /or monitor ", compared with the GB/T 4835-2008, in addition to editorial changes outside the main technical changes are as follows.

--- Standard name changed to "Radiation protection instrumentation beta, X and gamma radiation surrounding and/or directional dose equivalent (rate) meters and/or monitors Part 1. Portable workplace and environmental meters and monitors";

--- Modify the scope, clear in this section applies only to monitors and portable measuring instrument for use in the workplace and the environment;

--- "2 Normative references" added some national and international standards referenced in the body of the standard;

--- Modifications and additional terms and definitions;

--- Added "Unit 4 and bulleted lists";

--- "Minimum measuring range" by deleting the contents of the relevant emergency (see the 2008 edition of 4.1.6);

--- Increase the contents of the software;

--- Added Appendix B (informative) and Annex C (informative).

This section uses the translation method is equivalent to using IEC 60846-1. "Radiation protection instrumentation beta, X and gamma radiation around 2009 and/or directional dose Equivalent (rate) meters and/or monitors - Part 1. Portable workplace and environmental meters and monitors. " Consistency correspondence with international standards in this part of the country cited the following documents.

--- GB/T 8897.1-2008 Primary batteries - Part 1. General (IEC 60086-1:2007, MOD);

--- GB/T 8897.2-2008 Primary batteries - Part 2. Dimensions and electrical performance requirements (IEC 60086-2:2007, MOD);

--- GB/T 17626.3-2006 Electromagnetic compatibility - Testing and measurement techniques RFEMS test (IEC 61000-4-3:2002, IDT), normative references are cited in IEC 61000-4-3:2006;

--- GB/T 17626.6-2008 Electromagnetic compatibility - Testing and measurement techniques Immunity to conducted disturbances induced field (IEC 61000-4-6:2006, IDT), normative references are cited in IEC 61000-4-6:2008;

--- GB/T 17799.2-2003 Electromagnetic compatibility - Generic standards - Immunity for industrial environments (IEC 61000-6-2.

1999, IDT), normative references are cited in IEC 61000-6-2:2005.

This part of IEC 60846-1:2009 made the following editorial changes.

--- Delete foreword international standards;

--- "2 Normative references" to the new standard replaces the old version of the standard

(to IEC 60529:2001 instead of IEC 60529.

1989 to IEC 61000-4-2:2001 instead of IEC 61000-4-2:1995, with IEC 61000-4-8:2001 instead of IEC 61000-4-8:1993) and has corresponding national standards with international standards to our standards;

--- "2 Normative references" to remove the national and international standards GB standards do not appear in the text/T 2900.83-2008 and ISO/IEC Guide 99.2007, an increase of the national standard GB standard referenced in the text/T 2423.7-1995 and GB/T 2900.77-2008;

--- 3.5 to 3.7, 3.30 delete the definition of "3 Terms and definitions" last square brackets indicate the source content;

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

--- 8.8.2.2 "to the maximum range of more than $5\text{Sv} \cdot \text{h}^{-1}$, and twice the range of the maximum dose equivalent rate irradiation" to "on Range $5\text{Sv} \cdot \text{h}^{-1}$ more than the maximum, twice the range of the maximum or $50\text{Sv} \cdot \text{h}^{-1}$ in large irradiation dose equivalent rate " Make it operational;

--- 11.7.6 removed does not meet the conditions of "60Hz".

This part is proposed by the China National Nuclear Corporation.

This part of the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) centralized.

This section is drafted. Xi'an Nuclear Instrument Factory, Institute of Nuclear Industry Standardization.

1 Scope

GB/T 4835 This section applies to externally measure beta, X and gamma radiation of ambient dose equivalent (rate) and/or directional dose equivalent the amount (rate) of dose equivalent (rate) meters and/or monitors (by number ICRU47 recommendations of the report).

Note 1: If you mentioned the ambient dose equivalent and directional dose equivalent, can be abbreviated as dose equivalent.

This section only applies to portable measuring instrument and monitors for use in the workplace and in the environment. This section applies to externally measure beta Dose and/or X and gamma radiation dose equivalent rate or equivalent instruments, the dose range of $0.01\mu\text{Sv} \sim 10\text{Sv}$, dose rate range is $0.01\mu\text{Sv} \cdot \text{h}^{-1} \sim 10\text{Sv} \cdot \text{h}^{-1}$, the energy range are given in Table 1. All the energy value is the average amount of energy major dose.

Table 1 portion of the measurement range and energy involved

Measuring the amount of radiation energy range of photon energy range beta radiation H^* (10) 12keV ~ 10MeV -H '(0.07) 8keV ~ 250keV 0.07MeVa ~ 1.2MeV Almost equal to 225keV ~ 3.54MeV range E_{max} for a beta radiation to penetrate 0.07mm (almost equal to ICRU tissue 0.07mm) deep layer of dead skin, the energy requirements of 0.07MeV.

Note 2: The dose rate meter or monitor can be connected to the auxiliary probe for monitoring pollution, the relevant standard is applicable pollution monitoring probe GB/T 5202-2008.

If national regulations require the use of different measurement quantities (for example. air kerma or exposure), after adjustment can also be used in this section.

In this section, at the same time involving dose equivalent and dose equivalent rate measurements using the "dose equivalent (rate)."

Note 3: This section does not apply to medical radiation equipment, radiation in medical radiation exposure can be very uneven, but accurately known.

Note 4: This section does not apply for the evaluation of individual radiation doses received by the staff and worn equipment.

The purpose of this section is to provide means for determining ambient dose equivalent (rate) and directional dose equivalent (rate) dose equivalent (rate) Instrument to Summation performance characteristics.

This section provides.

a) dose equivalent (rate) meter general characteristics, functions and performance characteristics;

b) Test methods meet the requirements of this section.

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 2423.7-1995 Environmental testing for electric and electronic products Part 2. Test Ec and guidance. Drop and turn Down (Primarily for equipment - type specimens) (idt IEC 68-2-31. 1982)