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

GB/T 18989-2013

Replacing GB/T 18989-2003

**Radionuclide imaging device -- Characteristics and test
conditions -- Gamma cameras**

放射性核素成像设备 性能和试验规则 伽玛照相机

(English Translation)

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Table of Contents

Introduction

Introduction

1 Scope

2 Terms and definitions

Test Method 3

4 Product random file

Determination of Annex A (informative) source activity of

Annex B (informative) Performance Parameters Symbol Index

Annex C (informative) This standard reg number and IEC 60789:1992 reg control number

Annex D (informative) This standard and IEC 60789:1992 technical differences and their reasons

Appendix E (Informative Appendix) NEMANU1 publication gamma camera probe test

Foreword

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

This standard replaces GB/T 18989-2003 "Radionuclide imaging device - Characteristics and test gamma camera", and GB/T 18989-2003, compared the main technical changes are as follows.

--- Remove the GB/T 18989-2003 body NEMA relevant content;

--- Increase the informative Appendix E, appendix uses a NEMA Standards Publication NU1-2007 "Gamma Camera Performance Test" Chapter 2, Section 3 of the content;

--- Increased introduction.

This standard uses redrafted law revision adopted IEC 60789:1992 "Radionuclide imaging device - Characteristics and test gamma Camera ", according to the standard rules of the preparation of this standard, the following editorial changes made. Added informative and informative Appendix B attached Record E.

This standard remains GB/T 18989-2003 modify using IEC 60789:1992; This standard and IEC 60789:1992 Code of reg CrossRef See Appendix C; this standard and IEC 60789:1992 technical differences between their causes, see Appendix D.

Please note that some of the content of this document may involve patents. The standard

release mechanism does not assume the responsibility to identify these patents.

This standard was proposed by the State Food and Drug Administration.

This standard by the National Standardization Technical Committee appliances medical radiotherapy, nuclear medicine and radiation dosimetry equipment Standardization Technical Committee Will (SAC/TC10/SC3) centralized.

This standard was drafted. Beijing Medical Device Testing, Beijing Hamamatsu Photonics Co., Ltd., Siemens (China) Co., Ltd., Tong Electrical (China) Co., Ltd.

Introduction

GB/T 18989-2003 modify using IEC 60789:1992. Currently, the major manufacturers of radionuclide imaging device production Venues are located in the United States, the parameters of its report, the data processing software, test phantoms are the National Electrical Manufacturers Association NEMA standards for for the design basis, but also manufacturers use IEC standard. In order to facilitate the government, enterprises and medical institutions understand and use these products IEC and two series NEMA standard content, this revision will NEMA Standards Publication NU1-2007 "Gamma Camera Performance Test" on Chapter 2, Chapter 3 of the introduction of this standard, as an information Appendix E.

Since the IEC and NEMA standards there are some differences in testing requirements, test methods, the use of motifs, test conditions, test Position, the calculation method is different, so I can not compare with each other between the two standard test items and complete references recommend two standard user the method of any one species, not cross-use.

Radionuclide imaging devices - Characteristics and test Gamma Camera

1 Scope

This standard specifies the relevant definitions, test methods and product random file gamma camera.

This standard applies to Anger type gamma camera, the apparatus comprises a collimator and detector shielding radiation detector assembly, as well as record and a display device.

2 Terms and definitions

The following terms and definitions apply to this document.

Sources radioactivesource 2.1.1 Sources radioactivesource Activity and specific activity are predetermined level above a certain amount of radioactive material.

2.1.2

Point Source Approximate dimensions in three directions are radioactive delta function.

2.1.3

Line source Size in both directions delta approximate linear function of radioactive sources in the third direction of activity is uniform.

2.1.4

Activity

At a time, in a certain amount of radionuclide specific levels of radioactivity on quantified. Activity divided by the dN/dt quotient OK, where dN is the expected value at the time the number of nuclei decay within a certain level interval dt , see equation (1).

$$A = dN/dt \quad (1)$$

The special unit of activity Bq [Harrell] (Bq), 1Bq decay per second is equal to one. Activity unit s^{-1} can also be represented.

2.1.5

Attenuation when radiation passes through matter, interacting with a variety of substances to cause a decrease in some amount of radiation. For example, the amount of radiation may be a particle through the amount of energy flux density or density.

Note: does not include the amount of radiation attenuation due to different geometric distance from the radiation source caused decreases.

Pulse amplitude analyzer window (called the analyzer window)

pulseamplitudeanalyserwindow Pulse amplitude analyzer input signal amplitude range, in this range, an output signal analyzer.

Gamma Camera