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

GB/T 18988.2-2025

Replacing GB/T 18989-2013, GB/T 18988.2-2013, GB/T 18988.3-2013

**Radionuclide imaging devices - Characteristics and test
conditions - Part 2: Gamma cameras for planar, wholebody, and
SPECT imaging**

放射性核素成像设备 性能和试验规则 第2部分：平面、全身、断层成像伽玛照相
机

(English Translation)

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Appendix A (Informative) NEMA Standard Publication NU1-2018 Performance Measurement of Gamma Cameras

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 2 of GB/T 18988, "Performance and Test Rules for Radionuclide Imaging Equipment". GB/T 18988 has been...

The following sections were published.

---Part 1: Positron Emission Tomography Apparatus;

---Part 2: Planar, Whole-body, Tomographic Gamma Cameras this document replaces GB/T 18988.2-2013 "Performance and Test Rules for Radionuclide Imaging Equipment - Part 2: Single Photon Emissions".

"Radio Computed Tomography Devices", GB/T 18988.3-2013 "Performance and Test Rules for Radionuclide Imaging Equipment Part 3: Gamma Rayleigh".

"Full-body imaging system with camera" and GB/T 18989-2013 "Performance and test rules for radionuclide imaging equipment - Gamma photography" this document is based on GB/T 18988.2-2013, and integrates the contents of GB/T 18988.3-2013 and GB/T 18989-2013.

Compared with GB/T 18988.2-2013 and GB/T 18989-2013, the main technical changes are as follows, except for structural adjustments and editorial modifications.

as follows.

- Some content in the "Terms and Definitions" section has been revised (see Chapter 3, Chapter 3 of GB/T 18988.2-2013);
- The test method has been changed (see Chapter 4, GB/T 18988.2-2013);
- The system sensitivity has been changed (see 4.2.1, 4.4 of GB/T 18988.2-2013);
- The response non-uniformity has been modified (see 4.2.4, 3.3 of GB/T 18989-2013);
- The inherent multi-window spatial coordination has been modified (see 4.2.6, 3.5 of GB/T 18989-2013);
- Increased scatter-free spatial resolution (see 4.3.2);
- Improved tomographic imaging quality (see 4.4.5);
- The inherent point source sensitivity bias has been removed (see section 3.3.1.2 of GB/T 18988.2-2013);
- The accompanying documents have been modified (see Chapter 5, Chapter 5 of GB/T 18988.2-2013).

This document is modified to adopt IEC 61675-2:2015 "Radionoid Imaging Apparatus - Performance and Test Rules - Part 2: Planar, Full-Range" Body-to-tomographic gamma camera.

Compared with IEC 61675-2:2015, this document has undergone the following structural adjustments.

- a) Sections 4.4.5.8.4, 4.4.5.9.4, and 5.4.14 of IEC 61675-2:2015 have been deleted;
- b) The hierarchy and order of terminology entries in Chapter 3 have been changed;
- c) Appendix A has been added.

The technical differences between this document and IEC 61675-2:2015, and the reasons therefor, are as follows.

- a) The normative references to IEC 60788:2004 and IEC 61675-1:2013 have been deleted (see Chapter 3) to adapt to my country's national standards.

Technical conditions;

- b) The content regarding the accuracy of SPECT/CT imaging coordination has been removed (see IEC 61675-2:2015, sections 4.4.5.8.4 and 4.4.5.9.4).
5.4.14), as this content is not included in the scope of this document;
- c) The term and definition of accumulation effect (see 3.32 of IEC 61675-2:2015) have been deleted because they do not appear in the text;
- d) Added effective field of view, central field of view, collimator rear face, collimator incident

field, inherent multi-window spatial coordination, and observation counting.

Terms and definitions for rate, inherent count rate characteristics, system count rate characteristics, and single-photon emission computed tomography (see 3.2.2.1).

(3.2.2.2, 3.3.3, 3.3.4, 3.5.6, 3.6.3, 3.6.7, 3.6.8, 3.13.4), to harmonize with relevant standards and facilitate user reading and understand.

The following editorial changes have been made to this document.

--- An informative Appendix A has been added. The content of Appendix A adopts the NEMA standard publication NU1-2018 "Gamma Cameras".

"Can be measured".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the National Medical Products Administration.

This document is under the jurisdiction of the National Technical Committee on Standardization of Medical Electrical Appliances (SAC/TC10).

Introduction

GB/T 18988, "Performance and Test Rules for Radionuclide Imaging Equipment", is divided into two parts.

---Part 1: Positron Emission Tomography (PET) Apparatus. The purpose is to describe the experimental methods for evaluating the performance of PET systems.

Law and accompanying documents.

---Part 2: Planar, Whole-Body, Tomographic Gamma Cameras. The purpose is to describe gamma cameras and single-photon emission computed tomography (SEP) imaging techniques.

Test methods and accompanying documentation for SPECT (Spectral Processing Electron Device) performance.

This document is Part 2 of GB/T 18988, Radionuclide Imaging Equipment-Planar, Whole-Body, and Tomographic Gamma Cameras it typically includes a rack, one or more probes, and a computer for data acquisition, processing, storage, and display. The probes may consist of one or more scintillation detectors.

It consists of a device or a semiconductor detector.

This document modifies and adopts IEC 61675-2:2015, and incorporates NEMA standard publication NU1-2018 "Performance Measurement of Gamma Cameras".

As per Appendix A. Due to differences in test requirements and methods between IEC and NEMA standards, it is recommended that standard users...

Use either method in its entirety, without using them interchangeably.

Performance and testing rules for radionuclide imaging equipment Part 2: Planar, Whole-Body, Tomographic Imaging Gamma camera

1 Scope

This document defines the relevant definitions of gamma camera and single-photon emission computed tomography (SPECT), and describes the experimental methods.

The law stipulates the requirements for product-accompanying documentation.

This document applies to planar imaging gamma cameras, gamma cameras with full-body imaging systems, and SPECT.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Radioactive source

3.1.1

radioactive source

A certain amount of radioactive material with both activity and specific activity above a specified level.

3.1.2

pointsource

A radioactive source whose dimensions in all three directions approximate the delta function.

3.1.3

linesource

A linear radioactive source whose size approximates a delta function in two directions has uniform activity in a third direction.

3.1.4