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

GB/T 19042.5-2022

Replacing GB/T 19042.5-2006, GB/T 17006.11-2015

**Evaluation and routine testing in medical imaging departments
- Part 3-5: X-ray computed tomography equipment imaging
performance acceptance test and constancy test**

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5.3 of GB/T 17006.11-2015);

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 3-5 of GB/T 19042 "Evaluation and Routine Tests in Medical Imaging Departments". GB/T 19042 has been released

The following parts.

--- Part 3-1. Imaging performance acceptance test of X-ray equipment for X-ray photography and fluoroscopy systems (GB/T 19042.1);

--- Part 3-2. Imaging performance acceptance test of mammography X-ray equipment (GB/T 19042.2);

--- Part 3-3. Digital Subtraction Angiography (DSA) X-ray Equipment Imaging Performance Acceptance Test (GB/T 19042.3);

--- Part 3-4. Imaging performance acceptance test of dental X-ray equipment (GB/T 19042.4);

--- Part 3-5. X-ray computed tomography equipment imaging performance acceptance test and stability test (GB/T 19042.5).

This document replaces GB/T 19042.5-2006 "Evaluation and Routine Tests of Medical Imaging Departments - Part 3-5. X-ray Computers

Imaging Performance Acceptance Test of Tomography Equipment" and GB/T 17006.11-2015 "Evaluation and Routine Test of Medical Imaging Department No. 2-

Part 6. Imaging performance stability test of X-ray computed tomography equipment. This document will GB/T 19042.5-2006 and

GB/T 17006.11-2015 is integrated together, compared with GB/T 19042.5-2006 and GB/T 17006.11-2015, except for structural adjustment

In addition to the adjustment and editorial changes, the main technical changes are as follows.

- a) The terms and definitions have been changed to maintain consistency with the latest version of normative references (see Chapter 3, GB/T 19042.5-2006 Chapter 3, and Chapter 3 of GB/T 17006.11-2015);
- b) Added separate requirements for test devices, corresponding requirements for accompanying documents, and selection of acceptance tests and stability tests consideration (see 4.1.5, 4.2, 4.4);
- c) Added measures to be taken after major maintenance (see 4.6);
- d) The requirement of "reconstruction slice thickness" has been changed and replaced by "volume slice thickness" (see 5.3, 5.3 of GB/T 19042.5-2006,

5.3 of GB/T 17006.11-2015);

- e) Changed the judgment criteria of some acceptance tests (see 5.3.2.5, 5.4.5, 5.5.5, see 5.3.1.5, 5.3.1.5, 5.3.1.5 of GB/T 19042.5-2006

5.4.5, 5.5.5);

- f) Changed the judgment criteria of some stability tests (see 5.4.6.1, 5.5.6.1, see 5.4.5, 5.4.5, 5.4.5, GB/T 17006.11-2015).

5.5.5, 5.6.5);

- g) The corresponding requirements for typical children's head/body operating conditions have been added, and the relevant requirements for typical adult head/body operating conditions have been changed.

requirements (see 5.4, 5.5, 5.4, 5.5 of GB/T 19042.5-2006; 5.3, 5.5 of GB/T 17006.11-2015);

- h) Added relevant content about the use of filtered back projection (see 5.5.4.3);

- i) Added requirements for image quality and artifact inspection (see 5.5.4.4);

- j) Added the relevant content of automatic exposure control (see 5.7);

- k) Added content related to low-contrast resolution and low-contrast detection capability (see 5.8).

This document is modified to adopt IEC 61223-3-5.2019 "Evaluation and Routine Tests in Medical Imaging Sectors Part 3-5.Acceptance Tests and

Stability test imaging performance of X-ray computed tomography equipment.

Compared with IEC 61223-3-5.2019, this document has made the following structural adjustments.

--- Adjust Appendix A of IEC 61223-3-5.2019 to Appendix E; adjust Appendix B of IEC 61223-3-5.2019 to Appendix

F; Adjust Appendix C of IEC 61223-3-5.2019 to Appendix G; Adjust Appendix D of IEC 61223-3-5.2019 to Appendix

Record H; Adjust Annex E of IEC 61223-3-5.2019 to Annex I; Adjust Annex F of IEC 61223-3-5.2019 to

Appendix B; adjust Appendix G of IEC 61223-3-5.2019 to Appendix C; adjust Appendix H of IEC 61223-3-5.2019

Reorganized as Appendix A; adjusted Appendix I of IEC 61223-3-5.2019 to Appendix J; adjusted Appendix J of IEC 61223-3-5.2019

Adjusted to Appendix D.

The technical differences between this document and IEC 61223-3-5.2019 and their reasons are as follows.

--- Replaced IEC 60601-1.2012 (see 4.2) with the normatively cited GB 9706.1-2020, consistency between the two documents

The degree of modification is to adapt to the technical conditions of our country and increase the operability;

--- Replaced IEC 60601-2-44.2016 with the normatively cited GB 9706.244-2020 (see Chapter 1, Chapter 3, 5.4.1~

5.4.3), the degree of consistency between the two documents is to be modified to adapt to the technical conditions of our country and increase the operability;

--- Added relevant requirements for CT applications or radiation detectors that meet other regulatory requirements (see 5.4.2);

--- Changed the content of the description of the test in the first column 5.4.3 of Table A.1 to make it consistent with the text (see Table A.1);

--- Changed the description of the stability test corresponding to 5.5 in Table D.1 to make it consistent with the text (see Table D.1).

The following editorial changes have been made to this document.

--- In order to harmonize with existing standards, the name of the standard was changed to "Evaluation and Routine Tests in Medical Imaging Departments Part 3-5.X-ray

Computed Tomography Equipment Imaging Performance Acceptance Test and Stability Test";

--- Deleted "Note" in Chapter 1, and "Note 4" and "Note 5" of 5.4.3;

--- Deleted the index of international standards, adjusted the index number of other references;

--- Modified an obviously wrong chapter number, and changed C.4 to C.3.4.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

GB/T 19042 "Evaluation and Routine Tests of Medical Imaging Departments" establishes information on image quality of X-ray imaging equipment, patient positioning and

And imaging dose-related acceptance test and stability test method system, and give the relevant requirements. It is divided into the following parts.

--- Part 3-1.Imaging performance acceptance test of X-ray equipment for X-ray photography and fluoroscopy systems. X-ray photography and

Test methods and requirements related to X-ray equipment for fluoroscopy systems (GB/T 19042.1).

--- Part 3-2.Imaging performance acceptance test of mammography X-ray equipment. Mammography X-ray equipment imaging correlation is given

test methods and requirements (GB/T 19042.2).

--- Part 3-3.Acceptance test for imaging performance of digital subtraction angiography (DSA) X-ray equipment. digital subtraction vessels are given

Test methods and requirements related to contrast X-ray equipment (GB/T 19042.3).

--- Part 3-4.Imaging performance acceptance test of dental X-ray equipment. Test methods related to dental X-ray equipment and

requirements (GB/T 19042.4).

--- Part 3-5.X-ray computed tomography equipment imaging performance acceptance test and stability test. X-ray meter is given

Test methods and requirements related to computer tomography equipment (GB/T 19042.5).

After installation of new X-ray computed tomography equipment, or major modifications to existing X-ray computed tomography equipment