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

GB/T 19042.7-2025

**Evaluation and routine testing in medical imaging departments - Part
3-7: X-ray equipment for dental cone beam computed tomography
imaging performance acceptance and constancy tests**

医用成像部门的评价及例行试验 第3-7部分：口腔颌面锥形束计算机体层摄影X射线设备成像性能验收和稳定性试验

(English Translation)

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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 Parts 3-7 of GB/T 19042 "Evaluation and Routine Testing of Medical Imaging Systems". GB/T 19042 has been published.

The following section.

---Part 3-1.Acceptance Testing of Imaging Performance of X-ray Equipment for X-ray Radiography and Fluoroscopy Systems;

---Part 3-2.Acceptance Test of Imaging Performance of Mammography X-ray Equipment;

---Part 3-3.Acceptance Test of Imaging Performance of Digital Subtraction Angiography (DSA) X-ray Equipment;

- Parts 3-4.Acceptance Test of Imaging Performance of Dental X-ray Equipment;
- Parts 3-5.Acceptance and Stability Tests of X-ray Computed Tomography Equipment Imaging Performance;
- Parts 3-6.Imaging Performance Acceptance and Stability Testing of Mammography X-ray Equipment in Breast Tomography Synthetic Imaging Mode;
- Parts 3-7.Imaging performance acceptance and stability test of cone-beam computed tomography X-ray equipment for oral and maxillofacial region.

This document is modified to adopt IEC 61223-3-7:2021 "Evaluation and routine testing of medical imaging components - Part 3-7.Acceptance and stability".

"Sexual testing of the imaging performance of cone-beam computed tomography (CBCT) X-ray equipment for oral and maxillofacial region".

The technical differences between this document and IEC 61223-3-7:2021, and the reasons therefor, are as follows.

---IEC 60601-1-3 and IEC 60336 (see 5.1) have been replaced by the normatively referenced GB 9706.103 and YY/T 0063, respectively.

Adapt to my country's technological conditions;

---The measurement method for parameter d has been changed (see 5.8.3), from being obtained by actual measurement through scanned volume images to being obtained by actual measurement, because...

The parameter d cannot be obtained through actual measurement of scanned volumetric images;

---Change 2%~3% of the phantom image to 2%~3% of the phantom image area (see 5.9.3) to make its meaning clearer.

The following editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Evaluation and Routine Testing of Medical Imaging Systems Parts 3-7.Oral and Maxillofacial Regions".

"Acceptance and Stability Tests of Imaging Performance of Cone-Beam Computed Tomography X-ray Equipment"

---The informational reference GB 9706.263 replaces IEC 60601-2-63:2012 AMD1.2017 AMD2.2021 (see GB 9706.263).

Chapter 1);

---IEC 60601-1 (all parts) has been replaced with GB 9706.1 (all parts) for informative reference (see Chapter 1);

---IEC 61223-3-4 and IEC 61223-3-5 have been replaced by the informative references GB/T 19042.4 and GB/T 19042.5 respectively (see Chapter 1);

---Notes in sections 4.4 and 4.6 have been deleted;

---Change the average value K_d in 5.4.1 to K_d to correct the error in the original text;

---Change the highest resolution in 5.5.1 to geometric precision to correct the error in the original text and maintain consistency with the context;

---Change note 2 in 5.5.3 to "The ratio of b to p represents the voxel size measured from the image";

---Change the content of Note 1 in 5.9.3 to "One possible regional distribution is shown in B.3";

---Note added to A.6;

---The reference to the phantom description in B.1 has been changed from "The description of the phantom is in B.2" to "The description of the phantom is in Appendix C," correcting the error.

Errors in the original text;

---B.2.2 has been deleted because it is inconsistent with the content suggested by the title of B.2 and is redundant with the content of A.6; B.2.3 has been changed to B.3 was removed because its title was inconsistent with the content suggested by B.2; the title of B.2.1 was also removed because the revised B.2 no longer consists of bullet points.

---Change Figure B.5 to Figure B.3;

---Change Figure E.1 in note D.1.1 to Figure B.1 to correct the error in the original text;

---Change the differential convolution kernel $[-1,0,-1]$ or $[-0.5,0,-0.5]$ in D.2 to $[-1,0,1]$ or $[-0.5,0,0.5]$ to correct it.

Errors in the original text;

---The spatial frequency merging interval in D.2 has been changed from $2f_{int}$ to f_{int} , correcting an error in the original text;

---Adjust the lower suspension section of E.2.3 to E.2.3.1, and revert the original E.2.3.1 to E.2.3.2;

---Move the line number m_{max} and line number m_{min} corresponding to the maximum value P_{max} and minimum value P_{min} from E.2.2.3 to E.2.2.4.

This makes the context flow better;

---The statement "The determination of this value is related to the information obtained from the image (see 5.6)" in G.3 has been deleted, correcting an error in the original text;