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Evaluation and routine testing in medical imaging departments –

Part 2-7: Constancy tests – Equipment for intra-oral dental radiography excluding dental panoramic equipment

*Essais d'évaluation et de routine dans
les services d'imagerie médicale –*

*Partie 2-7:
Essais de constance –
Appareils de radiographie dentaire intra-orale à l'exclusion
des appareils dentaires panoramiques*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EVALUATION AND ROUTINE TESTING IN MEDICAL IMAGING DEPARTMENTS –**Part 2-7: Constasy tests –
Equipment for intra-oral dental radiography
excluding dental panoramic equipment**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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- 6) Attention is drawn to the possibility that some of the elements of this International standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61223-2-7 has been prepared by subcommittee 62B: Diagnostic imaging equipment, of IEC technical committee 62: Electrical equipment in medical practice.

The text of this standard is based on the following documents:

FDIS	Report on voting
62B/370/FDIS	62B/382/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex A forms an integral part of this standard.

Annexes B, C and D are for information only.

This standard forms part 2-7 of IEC 61223, which will include the following parts:

Part 1: General aspects

Part 2-1: Constancy tests – Film processors

Part 2-2: Constancy tests – Radiographic cassettes and film changers – Film-screen contact and relative sensitivity of the screen-cassette assembly

Part 2-3: Constancy tests – Darkroom safelight conditions

Part 2-4: Constancy tests – Hard copy cameras

Part 2-5: Constancy tests – Image display devices

Part 2-6: Constancy tests – X-ray equipment for computed tomography

Part 2-7: Constancy tests – Equipment for intra-oral dental radiography excluding dental panoramic equipment

Part 2-9: Constancy tests – Equipment for indirect radioscopy and indirect radiography

Part 2-10: Constancy tests – X-ray equipment for mammography

Part 2-11: Constancy tests – Equipment for general direct radiography

The committee has decided that this publication remains valid until 2003.

At this date, in accordance with the committee's decision, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

EVALUATION AND ROUTINE TESTING IN MEDICAL IMAGING DEPARTMENTS –

Part 2-7: Constancy tests – Equipment for intra-oral dental radiography excluding dental panoramic equipment

1 Scope and object

1.1 Scope

This part of IEC 61223 applies to RADIOLOGICAL INSTALLATIONS with diagnostic X-ray systems designed to expose intra-orally placed radiographic films or electronic equipment (sensors), but excluding dental panoramic equipment.

This standard is a part of a series of Particular Publications (standards and technical reports), which give methods of tests for the constancy of operation of various subsystems of diagnostic X-RAY EQUIPMENT.

This part of IEC 61223 is designed to be applicable to equipment for intra-oral dental radiography without digital imaging devices.

1.2 Object

This standard describes a method to check, in terms of functional parameters, that the constancy of the quality of images produced by intra-oral dental X-RAY EQUIPMENT is maintained after installation, calibration and adjustment have been carried out.

This standard defines

- the functional parameters, which describe the performance of X-RAY EQUIPMENT for intra-oral dental radiographic examination;
- methods of checking, whether variations in measured functional parameters meet ESTABLISHED CRITERIA, in order to ensure that the conditions for adequate imaging performance are maintained, while unnecessary IRRADIATION of the PATIENT is avoided.

The methods are based upon assessment of radiographic information using an appropriate TEST DEVICE.

The purpose of the methods is

- to establish a reference level of performance following an ACCEPTANCE TEST and an initial CONSTANCY TEST;
- to detect and verify any significant variation in functional parameters which may then require corrective actions.

Because RADIOLOGICAL INSTALLATIONS differ widely from each other, it is not possible in this standard to specify target values and tolerances for the parameters which would be generally applicable as criteria of acceptable performance. Guidance is given, however, as to the degree of variation in single measurements which might require appropriate action.

This standard gives methods of tests for the constancy of properties of diagnostic X-RAY EQUIPMENT as described in IEC 61223-1 (see clause 2).

This standard is not intended to deal with:

- aspects of mechanical or electrical safety;
- checks of the effectiveness of the direct means of protection against X-RADIATION;
- optimization of imaging performance.

In general, the use of a densitometer to check the optical densities is recommended. However, for simplicity, in this standard only the use of a simple TEST DEVICE and the visual comparison of a UNIFORM CONSTANCY TEST FILM with a reference INITIAL CONSTANCY TEST FILM is regarded as sufficient.

With regard to the measurements, reference is made to methods described in related publications which, for practical reasons, should be carried out prior to the application of the methods described in this standard (see clause 2).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61223. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61223 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60788:1984, *Medical radiology – Terminology*

IEC 61223-1:1993, *Evaluation and routine testing in medical imaging departments – Part 1: General aspects*

IEC 61223-2-1:1993, *Evaluation and routine testing in medical imaging departments – Part 2-1: Constancy tests – Film processors*

IEC 61223-2-2:1993, *Evaluation and routine testing in medical imaging departments – Part 2-2: Constancy tests – Radiographic cassettes and film changers – Film-screen contact and relative sensitivity of the screen-cassette assembly*

IEC 61223-2-3:1993, *Evaluation and routine testing in medical imaging departments – Part 2-3: Constancy tests – Dark room safelight conditions*

IEC 61223-2-4:1994, *Evaluation and routine testing in medical imaging departments – Part 2-4: Constancy tests – Hard copy cameras*

IEC 61223-2-5:1994, *Evaluation and routine testing in medical imaging departments – Part 2-5: Constancy tests – Image display devices*