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IEC 1223-2-2:1993

AS/NZS 4184.2.2

Australian/New Zealand Standard

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

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Part 2.2: Constancy tests— Radiographic cassettes and film changers—Film-screen contact and relative sensitivity of the screen- cassette assembly

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee HT/23 on Medical Diagnostic Imaging Equipment and issued as a Joint Standard under the terms of the Active Cooperation Agreement between Standards Australia and Standards New Zealand.

This Standard is identical with and has been reproduced from IEC 1223-2-2:1993 *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 screw-cassette assembly*.

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- (b) **Decimal marker** Substitute a full point for a comma where it appears as a decimal marker.
- (c) **References** The references to international Standards should be replaced by references to the following Australian or Joint Australian/New Zealand Standards:

*Reference to International Standard
or other publication*

Joint Australian/New Zealand Standard

IEC

AS/NZS

788

Medical radiology—Terminology

—

1223

Evaluation and routine testing in
medical imaging departments

4184

Evaluation and routine testing in
medical imaging departments

1223.1

Part 1: General aspects

4184.1

Part 1: General aspects

1223-2-3

Part 2-3: Constancy tests—Dark-
room safelight conditions

4184.2.3

Part 2.3 Constancy tests—Dark-
room safelight conditions

1223-2-12

Part 2-12: Constancy tests—Film
illuminators (under consideration)

The Annexes to this Standard, A, B, C, D and E are for information purposes only.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**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****1 Scope and object****1.1 Scope**

This technical report applies to RADIOGRAPHIC CASSETTES and to FILM CHANGERS used to record an X-RAY PATTERN on RADIOGRAPHIC FILM by DIRECT RADIOGRAPHY.

This technical report applies to RADIOGRAPHIC CASSETTES and FILM CHANGERS that are equipped with INTENSIFYING SCREEN(S).

This technical report does not apply to specialized RADIOGRAPHIC CASSETTES such as mammographic cassettes, multi-section cassettes and cassettes used in DENTAL PANORAMIC TOMOGRAPHY. Its application to RADIOGRAPHIC CASSETTES with an integrated ANTI-SCATTER GRID may not give satisfactory results.

This technical report is a part of a series of Particular Publications (standards and technical reports) which will describe test methods for the constancy of properties of various subsystems of diagnostic X-RAY EQUIPMENT, as described in IEC 1223-1.

1.2 Object

This technical report describes simple methods to check:

- the constancy of adequate, homogeneous contact between the INTENSIFYING SCREEN(S) and the RADIOGRAPHIC FILM in the RADIOGRAPHIC CASSETTE or the FILM CHANGER;
- the relative sensitivity of the INTENSIFYING SCREEN(S) and associated RADIOGRAPHIC CASSETTE.

2 References to other publications

The following IEC publications are quoted in this technical report:

IEC 788: 1984, *Medical radiology – Terminology*

IEC 1223-1: 1993, *Evaluation and routine testing in medical imaging departments – Part 1: General aspects*

IEC 1223-2-1: 1993, *Evaluation and routine testing in medical imaging departments – Part 2-1: Constancy tests – Film processors*

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IEC 1223-2-3: 1993, *Evaluation and routine testing in medical imaging departments – Part 2-3: Constancy tests – Darkroom safelight conditions*

IEC 1223-2-12: *Evaluation and routine testing in medical imaging departments – Part 2-12: Constancy tests – Film illuminators* (under consideration)

3 Terminology

3.1 Use of terms

This technical report contains a number of terms that are defined in IEC 788, in IEC 1223-1 and in IEC 1223-2-1 (see annex A, Terminology - Index of terms). Where these terms are used with the meanings given in their definitions, they are printed in capital letters to signify that the defined meaning applies. Words forming a part of the whole of any defined term may also appear in lower-case letters. In that event, the meaning is not intended necessarily to correspond to any formal definition, but to be derived from the customary meaning of the words in the language and from the actual context.

Terms derived from those formally defined (for example, the plural form of a term defined in the singular or the adjectival form of a term defined as a noun), are used where appropriate and, if printed in capital letters, have meanings linked to the definitions of the source terms concerned.

The term:

"specific" when used with parameters or conditions: refers to a particular value or standardized arrangement, usually to those required in an IEC publication or a legal requirement.

"specified" when used with parameters or conditions: refers to a value or arrangement to be chosen for the purpose under consideration and indicated usually in ACCOMPANYING DOCUMENTS.

3.2 Definitions

3.2.1 **FILM ILLUMINATOR:** Luminous surface in combination with additional provisions for the observation of transparent objects such as RADIOGRAMS on RADIOGRAPHIC FILM.

• 4 General condition of RADIOGRAPHIC CASSETTES, INTENSIFYING SCREENS and INTENSIFYING SCREENS in FILM CHANGERS

Any relevant instructions given in the ACCOMPANYING DOCUMENTS of the RADIOGRAPHIC CASSETTES, FILM CHANGER, and the INTENSIFYING SCREEN(S) should be observed when examining the devices.

The following measures should be taken:

- Each single INTENSIFYING SCREEN or each pair of INTENSIFYING SCREENS is given an individual identification such as a number;
 - this identification is written with permanent ink in an unobtrusive position on one INTENSIFYING SCREEN, so that it will be recorded on the film;
 - * NOTE - Attention has to be paid to the fact that permanent ink may affect or destroy the protective layer of INTENSIFYING SCREENS.
 - this identification is indicated on the outside of the RADIOGRAPHIC CASSETTE.
- Each RADIOGRAPHIC CASSETTE and FILM CHANGER should be labelled with
 - name of manufacturer of INTENSIFYING SCREEN(S) contained;
 - type(s) of INTENSIFYING SCREEN(S) contained;
 - date of acquisition of the INTENSIFYING SCREEN(S).

The general condition of all RADIOGRAPHIC CASSETTES and the INTENSIFYING SCREENS should be checked as follows, at least every six months:

- 1) The exterior and interior of each cassette is examined for
 - correct labelling;
 - cleanliness;
 - signs of warping and fatigue of the material provided to ensure the contact between RADIOGRAPHIC FILM and INTENSIFYING SCREEN.
- 2) The hinge assembly and closure mechanism of the cassette are examined for wear and damage.
- 3) Each INTENSIFYING SCREEN is examined for
 - cleanliness;
 - worn and stained areas; and
 - * as appropriate, any screen or pair of screens is cleaned or replaced, and the date recorded.

NOTE - It is generally undesirable to replace only one of a pair of INTENSIFYING SCREENS.
- * 4) Taking appropriate precautions to protect the eyes of the examiner, INTENSIFYING SCREENS are examined under ultra-violet light to reveal
 - artefacts;
 - regions where the protective coat has been worn away.

5 Testing the constancy of adequate contact in film-screen combinations

5.1 Summary

The adequacy of the contact between the RADIOGRAPHIC FILM and INTENSIFYING SCREENS is determined by viewing the uniformity in blackening of the DIRECT RADIOGRAM, and the clarity of the image of a standard TEST DEVICE placed in front of the RADIOGRAPHIC CASSETTE or FILM CHANGER to be tested.