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

GB/T 24791.1-2009

**Photography -- Sensitometry of screen/film systems for medical
X-radiography -- Part 1: Determination of sensitometric curve
shape, speed and average gradient**

摄影 医疗X射线成像用屏/片系统的感光测定 第1部分：感光特性曲线形状、感光度与平均斜率的测定

(English Translation)

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Foreword

This section identical with ISO 9236-1:2004 "photography medical X-ray imaging measurement - Part 1 photosensitive screen/film system.

Photosensitive characteristic curve shape, speed and average gradient measurement "(in English).

This section is equivalent translation ISO 9236-1:2004.

For ease of use, this section made the following editorial changes.

- a) "this International Standard" be replaced by "this section";
- b) use a decimal point instead of a decimal comma " , " . " , " ;
- c) amend the foreword and introduction.

Appendix A of this section and Appendix B is an informative annex.

This part is proposed by the China Petroleum and Chemical Industry Association.

This part of the photosensitive material by the National Standardization Technical Committee (SAC/TC102) centralized.

This section drafted by. China Lucky Film Group Corporation.

Introduction

This section provides sensitometric curve shape of the medical X-ray screen/film/holder/processing system, the average slope and speed of measurement. milk Except gland X-ray imaging and dental radiography.

Photosensitive characteristic curve shape is to use the strength of the standard X-ray sensitive measurement techniques at low scattering, preferably inverse square photographic measurement, Determination of other features (such as modulation transfer function MTF) also need to use a photosensitive curve.

Instead of measuring the measurement sensitivity of the photosensitive characteristic curve shape and its subsequent average slope of the screen/film/holder combination radiator Simply relative value measurement.

Determination of the sensitivity of the method to use separate, exposing it try to simulate the actual medical condition, including the portion of the actual X-ray scattering. Do not the same type of medical exposure is appropriate phantom and X-ray tube voltage analog, and screen/film/holder combination in the respective mold body exposure Light. To determine the sensitivity, radiation is air Kema (Gy) absolute value measurement.

It defines four different technologies, and the proportion of the scattered radiation beam quality is different, simulate limbs, head, chest and lumbar rectum Cavity. Available technology to measure each interest sensitivity. Since the X-ray energy and depends on the sensitivity scattering screen/film system in practice Medical applications vary greatly. Four measurement conditions described in this standard, there is provided a representative in the actual value of the medical condition.

GB/T 24791.1-2009/ISO 9236-1:2004 Photography Medical X-ray imaging with screen/film system Sensitometry Part 1. photosensitive characteristic curve shape, Determination of speed and average gradient

1 Scope

This section GB/T 24791 specifies the medical X-ray radiography sensitometric curve shape, speed and average gradient and screen/film/sheet Determination/Processing System folder. This measurement method is not suitable for such as breast X-ray tomography, dental radiography and direct exposure medical surgery Radiography systems, special radiographic (see ISO 5799).

The film holder can be any form, just make sure screen/film in close contact to prevent the film is exposed to ambient light. The film holder can be a Light does not leak vacuum bag frequently used in the experiment, or X-ray imaging cassette used in a medical X-ray photographic process.

2 Normative references

The following documents contain provisions which, through reference GB/T 24791 in this section constitute provisions of this section. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this section. However, to encourage an agreement under this Part Whether the parties can study the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 11500 photographic density measurements - Part 2. Geometric conditions (GB/T 11500-2008, ISO 5-2:2001, IDT) GB/T 11501 photographic density measurements - Part 3.

Spectral conditions (GB/T 11501-2008, ISO 5-3:1995, IDT) ISO 554. 1976 standard atmospheric conditions and/or test specifications

3 Terms and Definitions

The following terms and definitions apply to this section.

Radiographic imaging system consists of a shielded, film, film clips and film processing thereof.

Note: In the following screen/film/holder combination called "combination" When included processing system, known as the "system." 3.2 the sum of the initial kinetic energy of all charged particles (such as electrons) released from the Central African air molecules charged particles (such as X-ray photons), divided by the release the quality of the air in the volume of charged particles. Unit is Gy (Gy).

Logarithmic function of density and exposure of the film developing process after the correspondence between the curves.

In particular exposing, processing and density measurement conditions, screen/film systems for the quantitative measurement of radiation energy response.

On the photosensitive characteristic curve slope of the line connecting two specific points.

Film exposure, after subtracting the density of the flushing processing unexposed film and the density of developed.

GB/T 24791.1-2009/ISO 9236-1:2004