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**Calibration Specification for Medical Hard Copy Cameras
(English Translation)**

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3 Terms and measurement units (1)

3.1

Medical dry film (1)

3.2

Hardcopy camera (1)

3.3

Grayscale(1)

3.4

Film density (2)

3.5

Grayscale reproducibility (2)

3.6

Basic film (2)

3.7

Test film (2)

3.8

Image distortion (2)

3.9

Film viewer (2)

5 Measurement characteristics (2)

5.1

Grayscale reproducibility (2)

5.2

Image distortion (2)

6 Calibration conditions (2)

6.1

Environmental conditions (2)

6.2

Measurement standards and other equipment (3)

7 Calibration items and calibration methods (3)

7.1

Appearance and functional inspection (3)

7.2

Grayscale reproducibility (3)

7.3

Image distortion (3)

8 Calibration result expression (5)

8.1

Calibration record (5)

8.2

Processing of calibration results (5)

9 Recalibration interval (6)

Appendix A Format of Original Record (Recommended) for Calibration of Medical Hardcopy Cameras (7)

Appendix B Internal page of calibration certificate (recommended) format (8)

Appendix C Example of Uncertainty Evaluation of Gray Scale Reproducibility Calibration (10)

Appendix D Example of Uncertainty Evaluation of Image Distortion Calibration (12)

Introduction

JJF 1071-2010 "Rules for the Compilation of National Metrology and Calibration Specifications", JJF 1001-2011 "General Metrology Terms and Definition" and JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty" together constitute the support for the formulation of this specification the basic series of documents:

This specification is released for the first time:

Calibration specification for medical hardcopy cameras

1 Scope

This specification applies to the calibration of medical hard copy cameras (also called "medical film printers"), including dry lasers Optical camera and thermal film printer:

2 Reference documents this specification refers to the following documents:

JJF 1032-2005 Terms and Definitions of Optical Radiation Metrology GB/T 17006.3-2000 Evaluation and routine tests in medical imaging departments Part 2-2: X-ray photography Shadow cassette and film changer screen-film contact and screen-cassette assembly relative sensitivity stability test GB/T 17006.6-2003 Evaluation and Routine Tests in Medical Imaging Department Part 2-4: Hard Copy Photos Camera stability test GB/T 34988-2017 Information Technology General Specification for Toner Cartridges for Monochrome Laser Printers HG/T 4127-2017 medical dry film YY/T 0610-2007 General technical conditions for medical imaging photo observation equipment IEC 61223-2-4::1994 Evaluation and routine testing in medical imaging departments Part 2-4: Hard copy photography Machine stability test (Evaluation and routine testing in medical imaging departments-Part 2-4: Constancy tests-Hardcopy cameras) IEC TR60788:2004 Medical electrical equipment definition term glossary (Medical electrical equipment-Glossary of defined terms) SMPTE RP-133:1991 TV monitor and screenshot recording camera medical diagnostic imaging test mode specification Fan
(Specifications for medical diagnostic imaging test pattern for television monitors) for dated reference documents, only the dated version applies to this specification; for undated references the latest version (including all amendments) is applicable to this specification:

3 Terms and units of measurement

3.1 Medical dry film Contains medical dry laser film (consisting of polyester film coated with silver salt and protective layer) and medical dry thermal film (Composed of a polyester film base, a silver-containing heat-sensitive layer and a protective layer), it can be used as a diagnostic basis without the use of a developer:

Medical imaging (CT, MRI, CR, DR, etc.) records:

Note: "Medical dry film" is referred to as "film" in this specification:

3.2 Hardcopy camera A device that uses the input signal provided by the imaging system to produce an indelible image on the film:

3.3 grayscale

The visibility of brightness differences between adjacent grayscale blocks: