SLOVENSKI STANDARD
SIST EN 62563-1:2010/A1:2016

01-september-2016

Medicinska električna oprema - Sistemi za prikazovanje medicinskih slik - 1. del: Metode vrednotenja - Dopolnilo A1

Medical electrical equipment - Medical image display systems - Part 1: Evaluation methods

Ta slovenski standard je istoveten z: EN 62563-1:2010/A1:2016

ICS:

11.040.55	Diagnostična oprema	Diagnostic equipment

SIST EN 62563-1:2010/A1:2016 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62563-1:2010/A1

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English Version

Medical electrical equipment - Medical image display systems - Part 1: Evaluation methods (IEC 62563-1:2009/A1:2016)

Appareils électromédicaux - Systèmes d'imagerie médicale - Partie 1: Méthodes d'évaluation (IEC 62563-1:2009/A1:2016)

Medizinische elektrische Geräte - Medizinische Bildwiedergabesysteme - Teil 1: Bewertungsmethoden (IEC 62563-1:2009/A1:2016)

This amendment A1 modifies the European Standard EN 62563-1:2010; it was approved by CENELEC on 2016-04-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of document 62B/983/CDV, future IEC 62563-1:2009/A1, prepared by SC 62B "Diagnostic imaging equipment" of IEC/TC 62 "Electrical equipment in medical practice" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62563-1:2010/A1:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-01-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-04-28

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Endorsement notice

The text of the International Standard IEC 62563-1:2009/A1:2016 was approved by CENELEC as a European Standard without any modification.

IEC 62563-1

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INTERNATIONAL STANDARD

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AMENDMENT 1
AMENDEMENT 1

Medical electrical equipment – Medical image display systems – Part 1: Evaluation methods

Appareils électromédicaux – Systèmes d'imagerie médicale – Partie 1: Méthodes d'évaluation

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

This amendment has been prepared by subcommittee 62B: Diagnostic imaging equipment, of IEC technical committee 62: Electrical equipment in medical practice.

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

CDV	Report on voting
62B/983/CDV	62B/995/RVC

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

Introduction to Amendment 1

This amendment is published to introduce colour measurement.

Since publication of IEC 62563-1:2009, IEC 61223-2-5, *Evaluation and routine testing in medical imaging departments Part 2-5: Constancy tests – Image display devices* has been reviewed and withdrawn.

1 Scope

Replace the first sentence of the third paragraph with the following:

This standard applies to medical IMAGE DISPLAY SYSTEMS, which can display image information on greyscale and colour IMAGE DISPLAY SYSTEMS.

Add, at the end of the third paragraph, the following new sentence:

Handheld IMAGE DISPLAY SYSTEMS might require additional or modified versions of the procedures described in this standard.

Replace, in the fourth paragraph, the word "nor" *with* "or".

3.2 Symbols

Table 1 – Overview to the definitions of physical parameters

Add, before the last row, the following new row:

a_R	L_{amb}/L_{min}	Alternative safety factor. This factor is defined to provide consistency with other relevant documents (e.g. ACR–AAPM–SIIM Technical Standard For Electronic Practice Of Medical Imaging, Amended 2014, Resolution 39).

Replace, in the last row, third column, "Maximum distance" *by* "Distance".

7.2 Evaluation method table overview

Table 3 – List of the evaluation methods that can be used for testing medical IMAGE DISPLAY SYSTEMS

Replace, in the fourth but last row, first column, "Chromaticity evaluation" *by* "Chromaticity uniformity evaluation".

Replace, in the third but last row, "Chromaticity evaluation of multiple displays" *by* "Chromaticity evaluation across multiple displays".

Add, at the end of Table 3, the following new row:

Greyscale chromaticity evaluation	Colour meter

7.4.4 LUMINANCE evaluation of multiple displays

Replace, in the last sentence, "average" *by* "lowest".

7.4.5 Chromaticity evaluation

Replace the title of subclause 7.4.5 by the following:

7.4.5 Chromaticity uniformity evaluation

Add, before the existing first sentence of the second paragraph, the following new sentence:

The distance is calculated as the maximum for any two locations within the display screen.

7.4.6 Chromaticity evaluation of multiple displays

Replace the title of subclause 7.4.6 by the following:

7.4.6 Chromaticity evaluation across multiple displays

Add, in the second sentence of the first paragraph, after the word "measurements" *the phrase* "for all IMAGE DISPLAY DEVICES".

Delete, in the second paragraph, the words "deviation in".

Add the following new subclause:

7.4.9 Greyscale chromaticity evaluation

With a colour meter, luminance and colour coordinates (u', v') are measured using TG18-LN test patterns (TG18-LNx-i, i = 01, 02, …, 18). Measurements shall be performed without ambient light. With only the measurements corresponding to recorded luminance values higher than or equal to 5 cd/m^2, the distances in the u',v' plane with respect to the measurement at full white (i.e. from TG18-LNx-18) are computed as

$$\Delta u'_i v'_i = ((u_i' - u_{18}')^2 + (v_i' - v_{18}')^2)^{1/2}$$

The number of discarded measurements (luminance values less than 5 cd/m^2) will vary depending on the calibrated display function. For this reason, reporting greyscale chromaticity results should be accompanied by the calibrated display function used for the display device being measured.

The greyscale chromaticity is quantified as the maximum deviation in the computed values.The greyscale chromaticity evaluation method described in 7.4.9 is applicable to both colour and monochrome display devices.

Annex A
(informative)

Sample test reports

Table A.1 – Acceptance test sample report of a diagnostic display

Delete, in the second row, fifth line, the words "Brand Monochrome"*.*

Delete, in the second row, fifth line, the text "983300444 (first display of dual head)"*.*

Add the following new row at the end of Table A.1:

Greyscale chromaticity evaluation NOTE This device was calibrated according to the GSDF.	Colour meter	Max. deviation < 0,01 Discarded measurements: (L < 5 cd/m^2) LN01: L = 0,64 cd/m^2 u' = 0,193 6 v' = 0,427 6 LN02: L = 2,03 cd/m^2 u' = 0,200 3 v' = 0,449 1 LN03: L = 4,17 cd/m^2 u' = 0,203 9 v' = 0,464 9 Remaining measurements: LN04: u' = 0,204 6 v' = 0,469 5 LN05: u' = 0,204 8 v' = 0,471 5 LN06: u' = 0,204 9 v' = 0,472 7 LN07: u' = 0,205 0 v' = 0,473 5 LN08: u' = 0,205 1 v' = 0,474 0 LN09: u' = 0,205 1 v' = 0,474 3 LN10: u' = 0,205 1 v' = 0,474 4 LN11: u' = 0,205 3 v' = 0,474 3 LN12: u' = 0,205 1 v' = 0,474 1 LN13: u' = 0,205 2 v' = 0,473 8 LN14: u' = 0,205 3 v' = 0,473 3 LN15: u' = 0,205 0 v' = 0,472 4 LN16: u' = 0,204 9 v' = 0,471 5 LN17: u' = 0,204 9 v' = 0,470 8 LN18: u' = 0,205 0 v' = 0,470 8 Max. deviation = 0,003 6	OK