

Irish Standard I.S. EN IEC 60580:2020

Medical electrical equipment - Dose area product meters

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I.S. EN IEC 60580:2020

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EN IEC 60580

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2020

ICS 11.040.50

Supersedes EN 60580:2000 and all of its amendments and corrigenda (if any)

English Version

Medical electrical equipment - Dose area product meters (IEC 60580:2019)

Appareils électromédicaux - Radiamètres de produit exposition-surface (IEC 60580:2019)

Medizinische elektrische Geräte - Dosisflächenprodukt-Messgeräte (IEC 60580:2019)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60580:2020 (E)

European foreword

The text of document 62C/744/FDIS, future edition 3 of IEC 60580, prepared by SC 62C "Equipment for radiotherapy, nuclear medicine and radiation dosimetry" of IEC/TC 62 "Electrical equipment in medical practice" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60580:2020.

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
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-04-03

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IEC 60731:2011 NOTE Harmonized as EN 60731:2012 (not modified)

EN IEC 60580:2020 (E)

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication IEC 60417-1	<u>Year</u> -	Title EN/HD Ye Graphical symbols for use on equipment Part 1: Overview and application	<u>ear</u>
IEC 60601-1	2005	= ::	06
		•)14)10
		7.0	14
IEC 60601-1-2		+A11 20 Medical electrical equipment - Part 1-2:EN 60601-1-2 -	11
IEC 60601-1-2	-	General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests	
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - PartEN 61000-4-2 - 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) PartEN 61000-4-3 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) PartEN 61000-4-4 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - PartEN 61000-4-5 - 4-5: Testing and measurement techniques - Surge immunity test	
IEC 61000-4-6	-	Electromagnetic compatibility (EMC) - PartEN 61000-4-6 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	

EN IEC 60580:2020 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u> <u>EN/HD</u> <u>Year</u>
IEC 61000-4-11	-	Electromagnetic compatibility (EMC) - PartEN IEC 61000-4-11 -
		4-11: Testing and measurement
		techniques - Voltage dips, short
		interruptions and voltage variations
		immunity tests for equipment with input
		current up to 16 A per phase
IEC 61185	-	Ferrite cores (ETD-cores) intended for useEN 61185 -
		in power supply applications - Dimensions
IEC 61267	-	Medical diagnostic X-ray equipment -EN 61267 -
		Radiation conditions for use in the
		determination of characteristics
IEC 62368-1	-	Audio/video, information and EN IEC 62368-1 -
		communication technology equipment -
		Part 1: Safety requirements
		+prAB
IEC/TR 60788	2004	Medical electrical equipment - Glossary of- defined terms



IEC 60580

Edition 3.0 2019-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Medical electrical equipment - Dose area product meters

Appareils électromédicaux - Radiamètres de produit exposition-surface





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IEC 60580

Edition 3.0 2019-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Medical electrical equipment - Dose area product meters

Appareils électromédicaux - Radiamètres de produit exposition-surface

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEDICAL ELECTRICAL EQUIPMENT – DOSE AREA PRODUCT METERS

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International Standard IEC 60850 has been prepared by subcommittee 62C: Equipment for radiotherapy, nuclear medicine and radiation dosimetry, of IEC technical committee 62: Electrical equipment in medical practice.

This third edition cancels and replaces the second edition published 2000, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) a second class of devices is introduced with tighter uncertainty tolerances;
- b) this document has been expanded to include detectors other than ionization chambers;
- c) radiation qualities have been updated to the new definitions according to IEC 61267;
- d) a requirement on the linearity of the dose area product rate measurement was added;
- e) changed chamber light transmission requirement from 70 % to 60 %.

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
62C/744/FDIS	62C/751/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- requirements, compliance with which can be tested, and definitions: in roman type;
- explanations, advice, general statements, exceptions and references: small roman type;
- test specifications: italic type;
- TERMS USED THROUGHOUT THIS STANDARD WHICH HAVE BEEN DEFINED IN CLAUSE 3 OR LISTED IN THE INDEX: SMALL CAPITALS.

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- · reconfirmed,
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INTRODUCTION

Diagnostic radiology is the largest contributor to man-made ionizing radiation to which the public is exposed. The reduction in the exposure received by PATIENTS undergoing MEDICAL RADIOLOGICAL EXAMINATIONS or procedures has therefore become a central issue in recent years. The purpose of routine measurement of DOSE AREA PRODUCT is to help in achieving an overall reduction in the radiation received by PATIENTS undergoing MEDICAL RADIOLOGICAL EXAMINATIONS. Provided adequate records are kept, it is possible to determine PATIENT doses, to compare different examination techniques, to establish a technique giving minimum RADIATION to a PATIENT, and to ensure a maintenance of that technique; in this respect, such measurements have a place of particular importance in training establishments. Examination of records may also indicate a deterioration in the efficiency of the image-production system.

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MEDICAL ELECTRICAL EQUIPMENT – DOSE AREA PRODUCT METERS

1 Scope

This document specifies the performance and testing of DOSE AREA PRODUCT METERS intended to measure DOSE AREA PRODUCT and/or DOSE AREA PRODUCT RATE to which the PATIENT is exposed during MEDICAL RADIOLOGICAL EXAMINATIONS.

This document is applicable to the following types of DOSE AREA PRODUCT METERS:

- a) FIELD-CLASS DOSE AREA PRODUCT METERS normally used for the measurement of DOSE AREA PRODUCTS during MEDICAL RADIOLOGICAL EXAMINATIONS;
- b) REFERENCE-CLASS DOSE AREA PRODUCT METERS normally used for the CALIBRATION of FIELD-CLASS DOSIMETERS.

NOTE REFERENCE-CLASS DOSE AREA PRODUCT METERS can be used as FIELD-CLASS DOSE AREA PRODUCT METERS.

The object of this document is

- 1) to establish requirements for a satisfactory level of performance for DOSE AREA PRODUCT METERS, and
- 2) to standardize the methods for the determination of compliance with this level of performance.

Two levels of performance are specified:

- a lower level of performance applying to FIELD-CLASS DOSE AREA PRODUCT METERS;
- a higher level of performance applying to REFERENCE-CLASS DOSE AREA PRODUCT METERS.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 60601-1:2005, Medical electrical equipment – Part 1: General requirements for basic safety and essential performance

IEC 60601-1-2, Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral Standard: Electromagnetic disturbances – Requirements and tests

IEC TR 60788:2004, Medical electrical equipment – Glossary of defined terms

IEC 62368-1, Audio/video, information and communication technology equipment – Part 1: Safety requirements



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