

**MAJAPIDAMIS- JA MUUD TAOLISED ELEKTRISEADMED  
OHUTUS. OSA 2-27: ERINÕUDED NAHA  
KIIRITUSSEADMETELE, MIS PÕHINEVAD OPTILISEL  
KIIRGUSEL**

**Household and similar electrical appliances - Safety -  
Part 2-27: Particular requirements for appliances for  
skin exposure to optical radiation  
(IEC 60335-2-27:2009, modified  
+ IEC 60335-2-27:2009/A1:2012, modified  
+ IEC 60335-2-27:2009/A2:2015, modified)**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 60335-2-27:2014+A1+A2:2020 sisaldab Euroopa standardi EN 60335-2-27:2013 ja selle muudatuste A1:2020 ja A2:2020; ning paranduse AC:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-27:2014+A1+A2:2020 consists of the English text of the European standard EN 60335-2-27:2013 and its amendments A1:2020 and A2:2020 and corrigendum AC:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.  Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.12.2013, muudatused A1 24.04.2020 ja A2 24.04.2020.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.  Date of Availability of the European standard is 13.12.2013, for A1 24.04.2020 and A2 24.04.2020.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega <b>A1</b> <b>A1</b> .  Muudatusega A2 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega <b>A2</b> <b>A2</b> .  Parandusega AC lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega <b>AC</b> <b>AC</b> .  Sellesse standardisse on muudatuse A2 ühismuudatused sisse viidud ja tehtud muudatused tähistatud püstkriipsuga teksti vasakul veerisel.  Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti vasakul veerisel.  Standard on kättesaadav Eesti Standardikeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by symbols <b>A1</b> <b>A1</b> .  The start and finish of text introduced or altered by amendment A2 is indicated in the text by symbols <b>A2</b> <b>A2</b> .  The start and finish of text introduced or altered by corrigendum AC is indicated in the text by tags <b>AC</b> <b>AC</b> .  The amendment A2 common modifications have been incorporated into this international standard and changes have been marked by a vertical line on the left margin of the text.  In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.  The standard is available from the Estonian Centre for Standardisation.

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ICS 13.120; 97.170

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## English Version

Household and similar electrical appliances - Safety - Part 2-27:  
Particular requirements for appliances for skin exposure to  
optical radiation  
(IEC 60335-2-27:2009, modified  
+ IEC 60335-2-27:2009/A1:2012, modified  
+ IEC 60335-2-27:2009/A2:2015, modified)

Appareils électrodomestiques et analogues - Sécurité -  
Partie 2-27: Règles particulières pour les appareils  
d'exposition de la peau aux rayonnements optique  
(IEC 60335-2-27:2009, modifiée  
+ IEC 60335-2-27:2009/A1:2012, modifiée  
+ IEC 60335-2-27:2009/A2:2015, modifiée)

Sicherheit elektrischer Geräte für den Hausgebrauch und  
ähnliche Zwecke - Teil 2-27: Besondere Anforderungen für  
Hautbestrahlungsgeräte mit optischer Strahlung  
(IEC 60335-2-27:2009, modifiziert  
+ IEC 60335-2-27:2009/A1:2012, modifiziert  
+ IEC 60335-2-27:2009/A2:2015, modifiziert)

This European Standard was approved by CENELEC on 2013-05-29. Amendment A1 was approved by CENELEC on 2020-02-12. Amendment A2 was approved by CENELEC on 2018-05-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendments the status of a national standard without any alteration.

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

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

## Foreword

This document EN 60335-2-27:2013 consists of the text of IEC 60335-2-27:2009 prepared by IEC TC 61, "Safety of household and similar electrical appliances", together with the common modifications prepared by the Technical Committee CENELEC TC 61, "Safety of household and similar electrical appliances".

EN 60335-2-27:2013 is based on IEC 60335-2-27:2009, modifying it to fulfil the SCCP requirements for these appliances and to incorporate existing common modifications and interpretation statements.

The following dates are fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2014-06-13
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2014-11-21

This document supersedes EN 60335-2-27:2010.

The principal changes in EN 60335-2-27:2013 as compared with EN 60335-2-27:2010 are as follows (minor changes are not listed):

- clarification of the radiation measurement procedure (32.101);
- guidelines for an exposure time schedule (Annex DD).

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

EE NOTE On February 26, 2014, a new edition of the Low Voltage Directive 2014/35 / EU was issued, which entered into force on April 19, 2014.

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## Endorsement Notice

The text of the International Standard IEC 60335-2-27:2009 was approved by CENELEC as a European Standard with the following agreed common modifications:

## **Amendment A1 European foreword**

The text of document 61/4444/FDIS, future IEC 60335-2-27/A1, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-27:2013/A1:2020.

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 (dop) 2020-11-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-02-12

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For the relationship with EU Directive(s), see informative Annex ZZA<sup>1</sup>, which is an integral part of this document.

## **Endorsement notice**

The text of the International Standard IEC 60335-2-27:2009/A1:2012 was approved by CENELEC as a European Standard without any modification. <sup>A1</sup>

<sup>A1</sup> 1 EE NOTE 1 The reference to Annex has been corrected. <sup>A1</sup>

**A2 Amendment A2 European foreword**

This document (EN 60335-2-27:2013/A2:2020) consists of the text of IEC 60335-2-27:2009/A2:2015 prepared by IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC/61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-10-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-04-24

EE NOTE 1 The sentence "*This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 including its amendments and EN 60335-2-27:2013/A1:2020*" has been deleted.

The principal changes in EN 60335-2-27:2013/A2:2020 as compared with EN 60335-2-27:2013/A1:2020 are as follows (minor changes are not listed):

- Extension of the scope from appliances for skin exposure to ultraviolet and infrared radiation to appliances for skin exposure using all kinds of optical radiation.
- Definition and labeling requirements for goggles.

This amendment supplements or modifies the corresponding clauses of the standards below:<sup>2</sup>

- EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A14:2019+A2:2019 (Part 1)
- EN 60335-2-27:2013+A1:2020+A2:2020 (Part 2)

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For the relationship with EU Directive(s) see informative Annex ZZA<sup>3</sup>, which is an integral part of this document.

**Endorsement notice**

The text of the International Standard IEC 60335-2-27:2009/A2:2015 was approved by CENELEC as a European Standard with agreed common modifications. A2

A2<sup>2</sup> EE NOTE 1 This paragraph with two list items have been added. A2

A2<sup>3</sup> EE NOTE 2 The reference to the Annex has been corrected. A2





IEC 60335-2-27

Edition 5.2 2015-04

# CONSOLIDATED VERSION



**Household and similar electrical appliances – Safety –  
Part 2-27: Particular requirements for appliances for skin exposure to optical  
radiation**



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IEC 60335-2-27

Edition 5.2 2015-04

# CONSOLIDATED VERSION

**Household and similar electrical appliances – Safety –  
Part 2-27: Particular requirements for appliances for skin exposure  
to optical radiation**

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ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –****Part 2-27: Particular requirements for appliances  
for skin exposure to ultraviolet and infrared radiation**

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International Standard IEC 60335-2-27 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2014-04) corresponds to the English version, published in 2009-12.

This fifth edition cancels and replaces the fourth edition published in 2002, its Amendment 1 (2004) and Amendment 2 (2007). It constitutes a technical revision.

The principal changes in this edition as compared with the fourth edition of IEC 60335-2-27 are as follows (minor changes are not listed):

- clarification of the radiation measurement procedure (32.101);
- guidelines for an exposure time schedule (Annex DD).

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

FDIS	Report on voting
61/3911/FDIS	61/3969/RVD

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

The French version of this standard has not been voted upon.

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

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for appliances for skin exposure to ultraviolet and infrared radiation.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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The following differences exist in the countries indicated below.

- 7.1: The markings are different (USA).
- 10.1: The deviations are different (USA).
- 10.2: The deviations are different (USA).
- 19.101: The test is different (USA).
- 20.1: The test is carried out at an angle of 8° (USA).
- Clause 22: Series resistors are to be incorporated in some UV emitters (Australia).
- 22.107: The requirement is not applicable (USA).
- 22.108: The maximum timer setting is shorter (USA).
- 32.101: The irradiance limits and the tests are different (USA).
- 32.101: The total erythema **effective UV irradiance** shall not be greater than 0,3 W/m<sup>2</sup> (Belgium)
- 32.101: The **effective irradiance** limits and wavelength intervals are different (Spain).
- 32.102: The requirements for protective goggles are different (USA).
- Annex DD: The recommended number of exposures for each part of the body is to be based upon a maximum yearly dose of 5 kJ/m<sup>2</sup>, weighted according to the erythema action spectrum shown in Figure 103 and taking into account the recommended schedule of exposure (Finland).

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

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## **A1** AMENDMENT A1 FOREWORD

This amendment has been prepared by committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61/4444/FDIS	61/4497/RVD

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 web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication. **A1**

**A<sub>2</sub>** AMENDMENT A2 FOREWORD

This amendment has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2018-04) corresponds to the monolingual English version, published in 2015-04.

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

FDIS	Report on voting
61/4876/FDIS	61/4912/RVD

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 French version of this amendment has not been voted upon.

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NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

The contents of the corrigenda of May 2015 and December 2016 have been included in this copy. **A<sub>2</sub>**

## INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard covers appliances used for intentional tanning. Irradiance limit values are not to be used as safety guidelines for non-intentional UV-exposure.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

EE NOTE 1 Part 1 is IEC 60335-1, part 2 is the series of IEC 60335-2.


This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.


NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 2006/95/EC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 2006/42/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

 This Corrigendum supplements or modifies the corresponding clauses of the standards below:

- EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021 (Part 1)
- EN 60335-2-27:2013+A1:2020+A2:2020 (Part 2) 

## HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

### Part 2-27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation

#### 1 Scope

This clause of Part 1 is replaced by the following.

**AC** This European Standard deals with the safety of **electric appliances for skin exposure to ultraviolet and infrared radiation**, their maximum **rated voltages** being not more than 250 V for single phase and 480 V for all others.

NOTE Z101 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment and appliances for typical housekeeping functions used by non-expert users:

- in shops, offices and other similar working environments;
- in farm houses;
- by clients in hotels, motels and other residential type environments;
- in bed and breakfast type environments.

NOTE Z102 Household environment includes the dwelling and its associated buildings, the garden, etc.

Appliances and machines intended to be used in household, commercial applications, in shops, in light industry and on farms, are within the scope of this standard.

Additional requirements for appliances and machines with motorised parts intended for commercial use are given in Annex ZE. **AC**

**A2** As far as practicable, this standard deals with the common hazards presented by appliances that are encountered by persons using the appliances in tanning salons, beauty parlours and similar premises or at home. However, in general, it does not take into account

- **children** playing with the appliance;
- the use of the appliance by **children**;

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this standard. **A2**

NOTE 101 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities;
- IEC 60598-1 is applicable as far as is reasonable.

NOTE 102 This standard does not apply to

- **A2** appliances for skin or hair care (IEC 60335-2-23);

- sauna heating appliances and infrared cabins (IEC 60335-2-53);
- cosmetic and beauty care appliances incorporating lasers and intense light sources (IEC 60335-2-113)<sup>4</sup>;
- appliances for medical purposes (IEC 60601); <sup>A2</sup>
- appliances that use UV radiation for purposes other than tanning the skin;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

## 2 Normative references

<sup>A2</sup> This clause of Part 1 is applicable including the following<sup>5</sup>.

Addition:

IEC 61228, *Fluorescent ultraviolet lamps used for tanning – Measurement and specification method*

IEC 62471:2006, *Photobiological safety of lamps and lamp systems* <sup>A2</sup>

## 3 <sup>A1</sup> Terms and definitions <sup>A1</sup>

This clause of Part 1 is applicable except as follows.

### 3.101

#### ultraviolet emitter

<sup>A1</sup> ~~deleted text~~ <sup>A1</sup>

<sup>A1</sup> radiating source constructed to emit electromagnetic energy at wavelengths between 200 nm and 400 nm <sup>A1</sup>

Note <sup>A1</sup> 1 <sup>A1</sup> to entry A fluorescent UV lamp for tanning is an example of a **UV emitter**.

<sup>A1</sup> Note 2 to entry: UV radiation with wavelengths below 200 nm is not easily transmitted through air and usually exists only in a vacuum.

Note 3 to entry: **Ultraviolet emitters** are also referred to as **UV emitters**. <sup>A1</sup>

### 3.102

#### infrared emitter

<sup>A1</sup> ~~deleted text~~ <sup>A1</sup>

<sup>A1</sup> radiating source constructed to emit electromagnetic energy at wavelengths between 780 nm and 1 mm <sup>A1</sup>

<sup>A1</sup> Note 1 to entry: **Infrared emitters** are also referred to as **IR emitters**. <sup>A1</sup>

### 3.103

#### effective irradiance

irradiance of electromagnetic radiation weighted according to a specified action spectrum

### 3.104

#### UV filter

<sup>A1</sup> device used to modify the ultra-violet radiation passing through it, generally by altering the spectral distribution <sup>A1</sup>

<sup>A2</sup> 4 EE NOTE This standard was published in 2016. <sup>A2</sup>

<sup>A2</sup> 5 EE NOTE The word “except” has been replaced by “including the following”. <sup>A2</sup>