

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –
Part 2-113: Particular requirements for ~~cosmetic and~~ beauty care appliances
incorporating lasers and intense light sources**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-113: Exigences particulières pour les appareils destinés aux soins
~~cosmétiques et~~ esthétiques comportant des lasers et des sources de lumière
de forte intensité**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2021 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 60335-2-113

Edition 1.1 2021-11
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –
Part 2-113: Particular requirements for ~~cosmetic and~~ beauty care appliances
incorporating lasers and intense light sources**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-113: Exigences particulières pour les appareils destinés aux soins
~~cosmétiques et~~ esthétiques comportant des lasers et des sources de lumière
de forte intensité**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.120; 97.170

ISBN 978-2-8322-1053-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

REDLINE VERSION

VERSION REDLINE



**Household and similar electrical appliances – Safety –
Part 2-113: Particular requirements for ~~cosmetic and~~ beauty care appliances
incorporating lasers and intense light sources**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-113: Exigences particulières pour les appareils destinés aux soins
~~cosmétiques et~~ esthétiques comportant des lasers et des sources de lumière
de forte intensité**

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	7
3 Terms and definitions	7
4 General requirement.....	8
5 General conditions for the tests	8
6 Classification.....	9
7 Marking and instructions.....	9
8 Protection against access to live parts.....	11
9 Starting of motor-operated appliances	11
10 Power input and current.....	11
11 Heating.....	11
12 Void.....	12
13 Leakage current and electric strength at operating temperature.....	12
14 Transient overvoltages	12
15 Moisture resistance	12
16 Leakage current and electric strength.....	12
17 Overload protection of transformers and associated circuits	12
18 Endurance	13
19 Abnormal operation	13
20 Stability and mechanical hazards.....	13
21 Mechanical strength	13
22 Construction	14
23 Internal wiring.....	19
24 Components	19
25 Supply connection and external flexible cords	19
26 Terminals for external conductors.....	20
27 Provision for earthing	20
28 Screws and connections	20
29 Clearances, creepage distances and solid insulation	20
30 Resistance to heat and fire.....	20
31 Resistance to rusting	20
32 Radiation, toxicity and similar hazards.....	20
Annexes	22
Annex R (normative) Software evaluation	22
Bibliography.....	23
Figure 101 – Sign for Class 1C laser product appliances	21

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-113: Particular requirements for ~~cosmetic and~~ beauty care appliances incorporating lasers and intense light sources

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60335-2-113 edition 1.1 contains the first edition (2016-04) [documents 61/5112/FDIS and 61/5132/RVD] and its amendment 1 (2021-11) [documents 61/6367/FDIS and 61/6417/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

IEC 60335-2-113 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

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 fifth edition (2010) 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 cosmetic and beauty care appliances incorporating lasers and intense light sources.

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.

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.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under 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.

NOTE 4 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 standard be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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 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.

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 this part 2 standard. This does not apply to IEC 60825-1, except where specified in this part 2 standard.

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 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.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-113: Particular requirements for ~~cosmetic and~~ beauty care appliances incorporating lasers and intense light sources

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of ~~cosmetic and~~ beauty care appliances incorporating lasers or **intense light sources** for household and similar purposes, where their operation relies on contact with the skin, their **rated voltage** being not more than 250 V.

NOTE 101 Battery-operated appliances and other d.c. supplied appliances are within the scope of this standard. Dual supply appliances, either mains-supplied or battery-operated, are regarded as **battery-operated appliances** when operated in the battery mode.

This standard covers appliances with a light emitting surface less than 25 cm². Appliances with a light emitting surface equal to or greater than 25 cm² are within the scope of IEC 60335-2-27.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public such as appliances intended to be used in beauty salons and similar premises are also within the scope of this standard.

Appliances covered by the scope of this standard include but are not limited to:

- appliances for control of hair growth;
- appliances for skin and beauty care incorporating lasers or intense light sources (ILS).

NOTE 102 Appliances incorporating lasers or **intense light sources (ILS)** either heat up hair follicles or skin tissue to produce thermal effects or to produce photo-biological effects from specific wavelengths.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account:

- persons (including children) whose physical, sensory or mental capabilities or lack of experience and knowledge prevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 103 Attention is drawn to the fact that in many countries additional requirements are specified by the national health authorities.

NOTE 104 This standard does not apply to

- appliances for medical purposes (IEC 60601);
- appliances for skin or hair care (IEC 60335-2-23);
- appliances for nail hardening;
- appliances for skin exposure to optical radiation with a light emitting surface equal to or greater than 25 cm² (IEC 60335-2-27).

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60825-1:2014, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

ISO 7010:2019, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 14155, *Clinical investigation of medical devices for human subjects – Good clinical practice*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

Addition:

Additional terms and definitions given in IEC 60825-1:2014 and IEC 62471:2006 are also applicable.

3.1.9 Replacement:

normal operation

use of the appliance applied in accordance with the manufacturer's instructions

3.101

accessible emission limit

AEL

maximum accessible emission permitted within a particular class of laser product ~~or ILS risk group~~

Note 1 to entry: **Accessible emission limit** is hereinafter referred to as **AEL**.

Note 2 to entry: Wherever the text refers to "emission level not exceeding the **AEL**" or similar wording, it is implicit that the accessible emission is determined following the measurement criteria specified in Clause 5 of IEC 60825-1:2014 ~~or Clause 5 of IEC 62471:2006~~.

3.102

Class 1C laser product

laser product that during operation does not permit **stray optical radiation** in excess of the **AEL** of Class 1 for applicable wavelengths and emission durations

3.103 Void

~~**embedded laser**~~

~~laser that emits radiation within the **AEL** of **Class 3R laser products**, **Class 3B laser products** or **Class 4 laser products**, and that is incorporated in an appliance classified in a lower class~~

3.104

good contact

state that is established when the applicator is positioned at the target skin so that the skin acts to effectively prevent **stray optical radiation** ~~exposure in excess of the ocular **MPE**~~