IEC 60335-1

Edition 6.0 2020-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Household and similar electrical appliances – Safety – Part 1: General requirements

Appareils électrodomestiques et analogues – Sécurité – Partie 1: Exigences générales

IEC 60335-1:2020-09(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 13.120; 97.030

ISBN 978-2-8322-3935-3

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

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.
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International Standard IEC 60335-1 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This sixth edition cancels and replaces the fifth edition published in 2010, Amendment 1:2013 and Amendment 2:2016. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition (minor changes are not listed):

a) updated the text of this standard to align with the most recent editions of the dated normative references;
b) deleted some notes and converted many other notes, in whole or in part, to normative text;
c) changed some Annex designations from normative to informative;
d) introduced information on Guidance documents concerning the application of the safety requirements covered by IEC 60335 series and on how to retrieve them;

e) clarified requirements for PELV circuits;

f) clarification of requirements on measurement of power input and rated current when they vary throughout the operating cycle;

g) replaced normative Annex S with the informative Annex S "Guidance for the application of this standard on measurement of power input and current based on the requirements of 10.1 and 10.2 concerning the representative period";

h) introduced and clarified mechanical strength requirements for appliances with integral pins for insertion into socket-outlets;

i) revised requirements for battery-operated appliances;

j) introduced requirements for metal-ion batteries including a new Clause 12 Charging of metal-ion batteries;

k) introduced the application of test probe 18;

l) introduced requirements for appliances incorporating appliance outlets and socket-outlets accessible to the user;

m) revised and clarified requirements for appliances incorporating a functional earth;

n) introduced moisture resistance test requirements for appliances that incorporate an automatic cord reel and that have a second numeral IP rating;

o) clarified the appliance test criteria for the moisture resistance for appliances and parts of appliances with integral pins for insertion into socket-outlets;

p) introduced limits on the output voltage of an accessible safety extra-low voltage outlet or connector or Universal Serial Bus (USB) under abnormal operation conditions;

q) introduced requirements to cover optical radiation hazards;

r) introduced external communication software management items into normative Annex R;

s) revised external communication requirements in Table R.1 and Table R.2;

t) introduced in new normative Annex U cyber security requirements to avoid unauthorized access and the effects of transmission failures via remote communication through public networks.

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

FDIS	Report on voting
61/6012/FDIS	61/6089/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.

The language used for the development of this International Standard is English.

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

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

This part is to be used in conjunction with the appropriate part 2 of IEC 60335. The parts 2 contain clauses to supplement or modify the corresponding clauses in this part to provide the relevant requirements for each type of appliance.

This sixth edition of IEC 60335-1 is only to be used in conjunction with parts 2 that have been established on the basis of this edition.

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 this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

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 following differences exist in the countries indicated below.

– Introduction: The Part 1 standard (UL60335-1) is only used in combination with a part 2 (UL60335-2-x). National differences are specified in these standards (USA).
– 5.7: The ambient temperature is 25 °C ± 10 °C (Japan).
– 5.7: The ambient temperature is 27 °C ± 5 °C (India).
– 6.1: Class 0 appliances and class 0I appliances are not allowed (Australia, European Union, India, Israel, New Zealand, Norway, Singapore, Switzerland, United Kingdom).
– 7.12.2: The requirements for full disconnection do not apply (Japan).
– 7.12.8: The maximum inlet water pressure shall be at least 1,0 MPa (Denmark, Norway, Sweden and Finland).
– 13.2: The test circuit and some leakage current limits are different (India).
– 19.5: The test is also applicable to appliances intended to be permanently connected to fixed wiring (Norway).
– 22.2: The second paragraph of this subclause dealing with single-phase class I appliances with heating elements cannot be complied with because of the supply system (France).
– 22.2: The second paragraph of this subclause, that deals with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system (Norway).
– 22.2: Double-pole switches or protective devices are required (Norway).
– 25.3: A set of supply leads is not permitted (Norway, Denmark, Finland, Netherlands).
– 25.8: 0,5 mm^2 supply cords are not allowed for class I appliances (Australia and New Zealand).

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.

The contents of the Interpretation Sheet 1 (2021-11) and the corrigendum 1 (2021-12) have been included in this copy.

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.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website –

www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

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 the functions of an appliance are covered by different parts 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.

Throughout this publication, when "part 2" is mentioned, it refers to the relevant part of IEC 60335.

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 publications, basic safety publications and group safety publications 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.

Individual countries may wish to consider the application of this standard, as far as is reasonable, to appliances not mentioned in a part 2, and to appliances designed on new principles. In this case, consideration should be given to defining normal operation, specifying the classification of the appliance according to Clause 6 and specifying whether the appliance is operated attended or unattended. Consideration should also be given to particular categories of likely users and to related specific risks such as access to live parts, hot surfaces or hazardous moving parts.

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

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.