

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 2
AMENDEMENT 2

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

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

ITIH STANDARD PREVIEW
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IEC 60335-1:2010/AMD2:2016
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60335-1
Edition 5.0 2010-05
Amendment 2: 2016-05

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

INTERPRETATION SHEET 1

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

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
61/5999/DISH	61/6009/RVDISH

<https://standards.iteh.ai/catalog/standards/sist/51eb888e-fc32-438b-a0eb-35704490-0150-60335-1-3010-amd2-2016>

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

TC 61 interpretation sheet on: Detachable power supply parts of IEC 60335-1:2010/AMD2:2016

Introduction

Amendment 2 of IEC 60335-1:2010 defines and introduces requirements for a detachable power supply part of an appliance. In this amendment, 24.2 prohibits the use of a power supply in a flexible cord.

QUESTION:

Does Subclause 24.2 prohibit the use of a detachable power supply part?

ANSWER

No, a “detachable power supply part” is a defined term and is not captured by term “power supply” as used in Subclause 24.2.

NOTE A detachable power supply part is captured by the defined term when the output of the power supply part is detachable from the class III construction part of the appliance at:

- the power supply part, or
- the class III construction part of the appliance.

However, the supply cord (if any) does not have to be detachable from the detachable power supply part.

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[IEC 60335-1:2010/AMD2:2016](https://standards.iteh.ai/catalog/standards/sist/51eb888e-fc32-438b-a0eb-3fc70d480a01/iec-60335-1-2010-amd2-2016)

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FOREWORD

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

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

FDIS	Report on voting
61/5116A/FDIS	61/5166/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

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

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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.

IEC 60335-1:2010/AMD2:2016

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 corrigendum of September 2016 and the interpretation sheet of April 2020 have been included in this copy.

FOREWORD

Add the following to the list of differences existing in some countries:

- 7.12.8: The maximum inlet water pressure shall be at least 1,0 MPa (Denmark, Norway, Sweden).

INTRODUCTION

Replace the seventh paragraph by the following:

Individual countries may wish to consider the application of the 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.

1 Scope

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

This standard deals with the reasonably foreseeable hazards presented by appliances that are encountered by all persons.

2 Normative references

Replace the reference to IEC 60252-1 by the following:

IEC 60252-1, *AC motor capacitors – Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation*

Add the following new references:

IEC 60445:2010, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors*

IEC 62821-1, *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V – Part 1: General requirements*

ISO 178:2010, *Plastics – Determination of flexural properties*
ISO 178:2010/AMD 1:2013

ISO 179-1:2010, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 180:2000, *Plastics – Determination of Izod impact strength*

ISO 180:2000/AMD 1:2006

ISO 180:2000/AMD 2:2013

<https://standards.iteh.ai/catalog/standards/sist/51eb888e-fc32-438b-a0eb-3fc70d480a01/iec-60335-1-2010-amd2-2016>

ISO 527 (all parts), *Plastics – Determination of tensile properties*

ISO 4892-1:1999, *Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*

ISO 4892-2: 2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 8256:2004, *Plastics – Determination of tensile-impact strength*

3 Terms and definitions

3.3.13 Delete Note 2 and renumber Note 1 as NOTE.

Add the following new definition:

3.6.8

detachable power supply part

part of the appliance the output of which is intended to be detachable from the **class III construction** part of the appliance

Note 1 to entry: Means of detachment are a flexible cord and connector or an appliance outlet fitted to the detachable power supply part.

Note 2 to entry: A detachable power supply part is also referred herein after as a detachable power supply unit or detachable supply unit

5 General conditions for the tests

5.10 Add the following as a new second paragraph:

A **class III construction** part of the appliance is tested connected to its **detachable power supply part** taking into account the instructions provided with the appliance.

6 Classification

6.1 Add the following to the requirement as a new second paragraph:

If an appliance consists of a part of **class III construction** and a **detachable power supply part**, the complete appliance is classified as a **class I appliance** or **class II appliance** in accordance with the classification applicable to its **detachable power supply part**.

7 Marking and instructions

7.1 Replace the last dashed item in the first paragraph by the following:

- symbol IEC 60417-5180 (2003-02), for **class III appliances**. This marking is not necessary for appliances operated only by batteries (primary batteries or secondary batteries recharged outside of the appliance) or appliances powered by rechargeable batteries recharged in the appliance.

Add the following new subclause: (standards.iteh.ai)

7.12.9 For each language, the instructions specified in 7.12 and from 7.12.1 to 7.12.8 shall appear together before any other instructions supplied with the appliance. Alternatively, these instructions may be supplied with the appliance separately from any functional use booklet. They may follow the description of the appliance that identifies parts, or follow the drawings/sketches common to the languages of the instructions.

In addition, instructions shall also be available in an alternative format such as on a website or on request from the user in a format such as a DVD.

Compliance is checked by inspection.

7.14 Add the following as new second paragraph to the requirement:

The signal words WARNING, CAUTION, DANGER if in the Latin alphabet shall be in uppercase having a height not less than

- 3,5 mm for appliances normally used on the floor;
- 2,0 mm for **portable appliances** with a printable surface of less than 10 cm²; and
- 3,0 mm for other appliances.

NOTE A height of 3,5 mm is similar to Arial 14 pt, 3,0 mm is similar to 12 pt Arial and 2,0 mm is similar to 8 pt Arial. Other typefaces might differ in the pt value.

Uppercase letter of the text explaining the signal word shall be no smaller than 1,6 mm, with other letters according to the font size of the uppercase letter.

Countries that do not use the Latin alphabet need to specify the minimum size of the script to be used taking into account what is specified for the Latin alphabet.

Unless contrasting colours are used, moulded in, engraved, or stamped markings shall be either raised above or have a depth below the surface of at least 0,25 mm.

Replace the first paragraph of the test specification by the following:

Compliance is checked by inspection, by measurement and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit. The petroleum spirit to be used for the test is aliphatic solvent hexane.

8 Protection against access to live parts

8.1.3 *Replace the note by the following.*

*If a single switching action is obtained by a switching device, the switching device shall provide full disconnection and the **clearances** for full disconnection specified in 20.1.5.3 of IEC 61058-1:2000 shall be obtained from Table 22 of IEC 61058-1:2000 using the next higher step for rated impulse withstand voltage.*

*For appliances provided with a **supply cord** and without a switching device in their supply circuit, a single switching action may be obtained by the withdrawal of the plug from a socket-outlet.*

Compliance is checked by inspection and by manual test.

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13 Leakage current and electric strength at operating temperature

IEC 60335-1:2010/AMD2:2016

13.2 *Replace the first paragraph by the following:*

*The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999. For **class 0I appliances** and **class I appliances**, except parts of **class II construction**, C may be replaced by a low impedance ammeter responding to the **rated frequency** of the appliance.*

19 Abnormal operation

19.1 *Add the following to the penultimate paragraph of the test specification:*

If the control performs more than one function, only that aspect of the control under consideration is rendered inoperative. Other functions of the control may continue to operate normally.

19.7 *In the third paragraph of the test specification, replace “class P2” by “class S2 or S3”.*

19.11.3 *Replace the text of the test specification but not the note, by the following.*

*If the appliance incorporates a **protective electronic circuit** that operates to ensure compliance with Clause 19, the appliance is tested as follows:*

*A fault as indicated in a) to g) of 19.11.2 shall be incorporated in the **protective electronic circuit** either before the appliance is started or at any point in time after the appliance is started so that the most unfavourable conditions of the test are applied.*

*If the appliance is able to operate after the fault in the **protective electronic circuit** is incorporated, then the appliance is further tested as follows.*

For appliances for continuous operation the appliance is operated until steady conditions are reached. Then the relevant test of Clause 19 is repeated.

Other appliances are operated for one cycle of operation. Then the relevant test of Clause 19 is repeated.

19.11.4.2 *Replace the test specification but not the note, by the following:*

The appliance is subjected to radiated fields in accordance with IEC 61000-4-3.

The frequency ranges tested shall be:

- 80 MHz to 1 000 MHz, test level 3;
- 1,4 GHz to 2,0 GHz, test level 3;
- 2,0 GHz to 2,7 GHz, test level 2.

22 Construction

22.5 *Replace the requirement by the following:*

Appliances intended to be connected to the supply mains by means of a plug or pins for insertion into socket-outlets shall be constructed so that in normal use, when pins are touched, there is no risk of electric shock from charged capacitors having a rated capacitance equal to or greater than 0,1 μ F.

22.12 *Replace the requirement by the following:*

Handles, knobs, grips, levers and parts providing a similar function shall be fixed in a reliable manner so that they will not work loose in normal use if loosening could result in a hazard, including a choking hazard. If these parts are used to indicate the position of switches or similar components, it shall not be possible to remove or fix them incorrectly if this could result in a hazard. The requirement concerning the choking hazard does not apply to appliances intended for commercial use.

Add the following new paragraph to the test specification:

If the part is removed and can be contained within the small parts cylinder in Figure 13, its loosening is considered to result in a choking hazard.

Add the following new subclauses:

22.55 Devices that are operated by the user to stop the intended function of the appliance, if any, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position. This requirement concerning position does not preclude use of a push on push off switch.

An indication when the device has been operated shall be given by:

- tactile feedback from the actuator or tactile feedback from the appliance such as stopping of the vibration on the body of the appliance or of a part of it; or
- reduction in heat output; or
- audible and visible feedback.

The sound of the motor or sound of an actuator switching from on to off is considered as an audible feedback. A switch with a stable **off-position** different from the on-position is

considered visual and tactile feedback. The force feedback from the actuator when operating it is considered to be tactile feedback.

Compliance is checked by inspection and by manual test.

22.56 Detachable power supply part shall be provided with the part of **class III construction** of the appliance.

Compliance is checked by inspection.

22.57 The properties of non-metallic materials shall not degrade from exposure to UV-C radiation generated from UV sources provided for microbiological control within the appliance such that they no longer comply with this standard. This requirement does not apply to glass, ceramics or similar materials.

Compliance is checked by the conditioning and tests of Annex T.

24 Components

24.2 *Replace the first dashed item of 24.2 by the following.*

- switches, automatic controls, power supplies and the like in flexible cords;

24.8 *In the first dashed item of the second paragraph of the requirement replace “class of safety protection P2” by “class of safety protection S2 or S3”.*

25 Supply connection and external flexible cords

25.7 *Add to the end of the dashed items:*

- Halogen-free, low smoke, thermoplastic insulated and sheathed

Their properties should at least be those of:

- Light duty halogen-free low smoke flexible cable (code designation 62821 IEC 101 for circular cable and code designation 62821 IEC 101f for flat cable);
- Ordinary duty halogen-free, low smoke flexible cable (code designation 62821 IEC 102 for circular cable and code designation 62821 IEC 102f for flat cable).

25.10 *Add the following to the requirement as a new third paragraph:*

Where additional neutral conductors are provided in the **supply cord**

- other colours may be used for these additional neutral conductors;
- all of the neutral conductors and line conductors shall be identified by marking using the alpha numeric notation specified in IEC 60445;
- the **supply cord** shall be fitted to the appliance.

25.23 *Add the following new dashed item to the requirement:*

- for **class III construction**, interconnection cords of a **class I appliance or class II appliance**, the cross sectional areas of the conductors need not comply with 25.8 if the temperature of the cord insulation specified in Table 3 and Table 9 are not exceeded during the tests of Clause 11 and Clause 19, respectively.

Figures

Add the following new figure.

Dimensions in millimetres

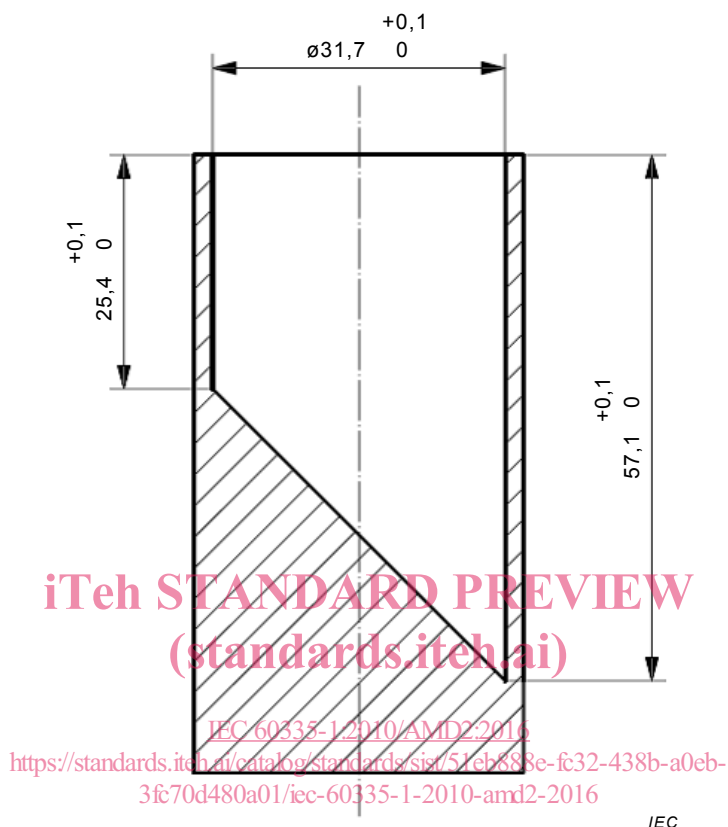


Figure 13 – Small parts cylinder

Annex B – Appliances powered by rechargeable batteries that are recharged in the appliance

7.12 Replace the third paragraph and three dashed items by the following:

Instructions for appliances containing non user-replaceable batteries shall state the substance of the following:

This appliance contains batteries that are only replaceable by skilled persons.

Instructions for appliances containing non-replaceable batteries shall state the substance of the following:

This appliance contains batteries that are non-replaceable.

Annex P – Guidance for the application of this standard to appliances used in warm damp equable climates

Throughout the text of the annex including the title, replace “warm damp equable” by “tropical”.