IEC 60335-2-105

Edition 2.0 2016-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Household and similar electrical appliances – Safety – Part 2-105: Particular requirements for multifunctional shower cabinets

Appareils électrodomestiques et analogues – Sécurité – Partie 2-105: Exigences particulières pour les cabines de douche multifonctions

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-105: Particular requirements for multifunctional shower cabinets

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

This second edition cancels and replaces the first edition published in 2004 including its Amendment 1 (2008) and its Amendment 2 (2013). It constitutes a technical revision.

The principal changes in this edition as compared with the first edition of IEC 60335-2-105 are as follows (minor changes are not listed):

- revised the application of a live part (8.1.4);
- aligned the temperature rise limits of surfaces likely to be in contact with the skin with IEC Guide 117 for a contact time of one minute (Table 3).

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

FDIS	Report on voting
61/5283/FDIS	61/5300/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.

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

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.

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 multifunction shower cabinets.

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.

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The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

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 the amendment 2 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.

– 30.101: Additional requirements apply to large panels of non-metallic material (USA).

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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 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 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.

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-105: Particular requirements for multifunctional shower cabinets

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **multifunctional shower cabinets** and electric **separate multifunctional shower units** for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

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 by laymen in hotels, fitness centres and similar locations, are within the scope of this standard.

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 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 water supply authorities, the national authorities responsible for the protection of labour and similar authorities;
– in many countries, mechanical strength, impact resistance and shattering properties of shower enclosures can be covered by national regulations.

NOTE 102 If an appliance incorporates a part that is within the scope of IEC 60065, IEC 60598 or IEC 60950, the part is tested in accordance with the relevant standard as far as reasonable.

NOTE 103 This standard does not apply to

– instantaneous water heaters used for showering (IEC 60335-2-35);
– shower-boost pumps (IEC 60335-2-41);
– appliances intended for medical purposes;
– 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

This clause of Part 1 is applicable except as follows.

Addition:

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ISO 3864-1:2011, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.101
multifunctional shower cabinet
prefabricated shower cabinet that incorporates at least one other function, such as a steam bath, in addition to the showering function

Note 1 to entry: An example of a **multifunctional shower cabinet** is shown in Annex AA.

3.102
separate multifunctional shower unit
multifunctional shower unit without a prefabricated shower cabinet that incorporates at least one electric function in addition to the showering function

Note 1 to entry: An example of a **separate multifunctional shower unit** is shown in Annex BB.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.4 *Addition:*

When testing a function of the appliance, the influence of another function that can be applied simultaneously is taken into account.

5.6 *Addition:*

Sensing elements located in the air intake to the heater are short-circuited or otherwise rendered inoperative.

6 Classification

This clause of Part 1 is applicable except as follows.

6.2 *Addition:*

Multifunctional shower cabinets and **separate multifunctional shower units** shall be at least IPX4.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 *Addition:*

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For appliances with an air-heating function, other than those having the air outlet located at a height at least 1,8 m above the floor or those that cannot be covered, shall be marked near the air outlet with symbol IEC 60417-5641 (2002-10) combined with the prohibition sign in ISO 3864-1, except for colours, or with the substance of the following:

WARNING: Do not cover

Appliances shall be marked on or near the lampholder with the maximum power input of replaceable lamps as follows:

Lamp max .... W

The word “lamp” may be replaced by symbol IEC 60417-5012 (2002-10).

If the temperature of a water or steam outlet, excluding the shower head and the water outlets when the water is not heated by the **multifunctional shower cabinet** or **separate multifunctional shower unit** itself, exceeds 60 °C, the appliance shall be marked near the outlet with the symbol IEC 60417-5041 (2002-10) or with the substance of the following:

CAUTION: Hot surface

7.6 *Addition:*

[symbol IEC 60417-5041 (2002-10)] hot surface

do not cover

NOTE 101 The “Do not cover” symbol incorporates symbol IEC 60417-5641 (2002-10) combined with the prohibition sign of ISO 3864-1, except for colours.

7.12 *Addition:*

The instructions shall provide details concerning cleaning to ensure hygienic conditions.

The instructions shall state that separate electrical appliances producing steam or humidity are not to be used inside the cabinet.

If symbols IEC 60417-5041 (2002-10) or “Do not cover” are marked on the appliance, their meaning shall be explained.

The instructions shall state the substance of the following:

WARNING: Only allow children to use the appliance without supervision when adequate instructions have been given so that the child is able to use the appliance in a safe way and understands the hazards of improper use.

7.12.1 *Addition:*

The instructions shall make reference to national wiring rules and state the substance of the following:

– earthed appliances must be permanently connected to fixed wiring;

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– the appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.

The instructions shall give details on how to follow the wiring rules, for example by ensuring that the installation is in the correct zone and that equipotential bonding is carried out.

7.14 *Addition:*

The height of symbol IEC 60417-5041 (2002-10) and symbol “Do not cover” shall be at least 15 mm. The height of the upper case letters in the words “CAUTION Hot surface” and “WARNING Do not cover” shall be at least 6 mm.

7.15 *Addition:*

Symbol IEC 60417-5041 (2002-10) shall be marked near the outlet for hot air.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.4 *Modification:*

Any energized part is considered to be a **live part** except water level sensors

– at **safety extra-low voltage** not exceeding 12 V; and
– within an earthed metal enclosure; and
– in an appliance permanently connected to the fixed wiring.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.4 *Addition:*

If the temperature rise limits are exceeded in appliances incorporating motors, transformers or ***electronic circuits****, and the power input is lower than the* ***rated power input****, the test is repeated with the appliance supplied at 1,06 times* ***rated voltage****.*

11.6 *Addition:*

Combined appliances *are operated as* ***heating appliances****.*

11.7 *Replacement:*

Appliances are operated until steady conditions are established.

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