

INTERNATIONAL STANDARD

NORME INTERNATIONALE



AMENDMENT 1
AMENDEMENT 1

Household and similar electrical appliances – Safety –
Part 2-30: Particular requirements for room heaters

Appareils électrodomestiques et analogues – Sécurité –
Partie 2-30: Exigences particulières pour les appareils de chauffage des locaux

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IEC 60335-2-30:2009/AMD1:2016
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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
61/5281/FDIS	61/5298/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- withdrawn,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.

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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.

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.

CONTENTS

Replace the title of Clause 3 by the following:

Terms and definitions

FOREWORD

In the list of differences existing in countries, delete the difference listed for Australia concerning 11.8.

1 Scope

Add the following new dashed item to Note 101:

- cab heaters;

Add the following text as a new third paragraph:

This standard also deals with the safety of electric heaters intended for the heating of driver and passenger compartments of motor vehicles when they are stationary, their **rated voltage** being not more than 250 V.

In the first dashed item of Note 102 replace “vehicles” by “moving vehicles”.

Add the following new dashed item to Note 103:

- heaters intended for the heating of caravans.

2 Normative references

Add the following new reference:

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

3 Definitions

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Replace the title of Clause 3 but not the clause number, by the following:

[IEC 60335-2-30:2009/AMD1:2016](https://standards.iteh.ai/catalog/standards/sist/544abc36-3db5-4bd5-b3a9-5cfl392bfad5/iec-60335-2-30-2009-amd1-2016)

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Terms and definitions [5cfl392bfad5/iec-60335-2-30-2009-amd1-2016](https://standards.iteh.ai/catalog/standards/sist/544abc36-3db5-4bd5-b3a9-5cfl392bfad5/iec-60335-2-30-2009-amd1-2016)

Add the following new definition:

3.107

cab heater

fan heater for the heating of driver and passenger compartments of motor vehicles when the vehicle is stationary

5 General conditions for the tests

5.2 Add the following to the addition:

Three additional samples are needed for the test of 19.113. The test of 19.117 is carried out on one of these samples.

The test of 21.104 is carried out on a separate appliance.

The test of 21.106 is carried out on a separate appliance.

7 Marking and instructions

7.1 In the second paragraph of the addition, replace “except for colours” by “with or without colours”.

Add the following new text to the addition:

Cab heaters shall be marked with the following:

Cab heater

Add the following new subclause:

7.10 Addition:

The different positions of switches and controls on room heaters shall be indicated by figures, letters or other visual means. This requirement also applies to switches that are part of a control.

The on position shall be clearly visible to the user when the heater is in its intended position of use.

7.12 *Replace the seventh paragraph of the addition by the following:*

The instructions for **portable heaters** shall include the substance of the following:

- do not use this heater in the immediate surroundings of a bath, a shower or a swimming pool;
- do not use this heater if it has been dropped;
- do not use if there are visible signs of damage to the heater;
- use this heater on a horizontal and stable surface, or fix it to the wall, as applicable.

Replace the last paragraph of the addition with the following:

The instructions for **portable heaters** shall include the substance of the following:

WARNING: Do not use this heater in small rooms when they are occupied by persons not capable of leaving the room on their own, unless constant supervision is provided.

WARNING: To reduce the risk of fire, keep textiles, curtains, or any other flammable material a minimum distance of 1 m from the air outlet.

7.12.1 *Add the following new paragraph to the addition:*

The installation instructions for **cab heaters** shall state

- the shortest permissible distance between the heater outlet and the interior surfaces of the motor vehicle;
- that the installation shall be in accordance with any instructions issued by the vehicle manufacturer.

11 Heating

11.2 *Add the following text to the addition as a new third paragraph:*

Fixed heaters having a **supply cord** fitted with a plug are mounted in front of a flush mounted type socket-outlet installed in the wall of the test corner with the plug inserted unless

- the distance between the heater and the wall does not exceed 30 mm; or
- the instructions state that the heater shall not be located in front of a socket-outlet.

Add the following new paragraphs:

For ceiling mounted heat lamp appliances, means for ventilation or ducting are provided in accordance with the installation instructions.

Cab heaters are placed in the test corner as follows:

A test box as shown in Figure 103 and made of dull black-painted plywood approximately 20 mm thick is used. The wall A can be positioned at different distances from the far end of the test box.

NOTE 104 The test box simulates the front driver/passenger compartment of a motor vehicle. One wall of the test corner simulates the driver's door.

The test box is placed in the test corner, with side B against one wall of the test corner and the sloping end of the test box against the other wall of the test corner. The test corner shall be at least 470 mm wide, 760 mm deep and 470 mm high.

NOTE 105 Wall B of the test box, as well as its bottom, can be open to facilitate access before and after the test.

The **cab heater** is placed in the test box in the most unfavourable position according to the manufacturer's instructions, if it will fit into the test box, and with the distance $L = 0$ mm. The shortest distance to the wall of the test box shall not be less than that stated in the manufacturer's instructions for the shortest permissible distance between the heater outlet and the interior surfaces of the motor vehicle. The wall A of the test box may be moved to increase L to a maximum distance $L = 220$ mm.

If the manufacturer has not supplied any instructions for the placing of the **cab heater** or if the heater cannot fit in the test box, the **cab heater** is placed in the most unfavourable position on the floor of the test corner. Heaters containing PTC heating elements are placed away from the walls if this will lead to higher temperatures.

IEC 60335-2-30:2009/AMD1:2016
11.8 Add the following new text to the addition:
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For **fixed heaters** mounted in front of a socket-outlet, the temperature rise of the plug shall not exceed 45 K.

During the test for **cab heaters**, the temperature rise of the walls of the **cab heater** test box and the test corner shall not exceed 65 K.

The temperature rise of surfaces of **cab heaters** shall not exceed the values shown in Table 102.

Table 102 – Maximum temperature rise for surfaces of cab heaters

Surface	Temperature rise K
Parts of the heater exposed to ambient air and that are accessible to test probe B of IEC 61032	90
All surfaces that are curved with a radius not exceeding 10 mm or that are inclined at greater than 60° to the horizontal and that, in addition, are not accessible to test probe B of IEC 61032	No limit
Other parts of the cab heater accessible to ambient air	275

19 Abnormal operation

19.1 Add the following new paragraphs to the modification:

Cab heaters are also subjected to the tests of 19.116.

If relevant, then 19.117 is also applicable.

19.103 Replace the fifth and sixth paragraphs by the following:

The rear surface of the heater is completely covered with strips down to the floor if

- the heater is constructed to stand away from the wall by a distance exceeding 30 mm;
- for **fixed heaters**, the gap between the heater and the wall exceeds 30 mm, and the horizontal distance
 - between any two fixing points or spacers exceeds 200 mm, or
 - between any fixing point or spacers and the end of heater exceeds 100 mm,
 otherwise the rear surface is covered to a distance of approximately one-fifth of the height of the heater from the top;
- for **fixed heaters**, the gap between the heater and the wall exceeds 30 mm, and
 - the horizontal distance between spacers or fixing points is less than 100 mm, the rear surface of the heater is covered down to the floor where the felt strips can fit and are covered to a distance of approximately one-fifth of the height of the heater where the felt strips are too wide; or
 - having fixing points or spacers with a vertical distance to the top of less than one-fifth of the height of the heater, the rear surface of the heater is covered from the top for a distance to the fixing points or spacers at the fixing points or spacers and down to the floor at other points.

19.107 Delete from the first paragraph “having an enclosure substantially of non-metallic material”.

19.108 Replace the second paragraph of the test specification by the following:

The paper has a specific mass of $80 \text{ g/m}^2 \pm 16 \text{ g/m}^2$.

19.109 Replace “**Portable fan heaters**” by “**Cab heaters and portable fan heaters**”.

19.112 Replace the first paragraph by the following:

Portable heaters are operated as specified in Clause 11 but placed on a soft-wood surface that is covered with felt having the same specific mass and thickness as specified in 19.103 but without any textile material. The heater is overturned by placing it in the most unfavourable position that can be reached by accident. The heater shall be overturned before starting the test or after steady conditions are established, whichever sequence gives the most unfavourable result.

NOTE 1 Thermal controls that operate during the test of Clause 11 are allowed to operate.

Thermocouples are attached to the back of small blackened disks of copper or brass, 15 mm in diameter and 1 mm thick. The disks are spaced 50 mm apart and placed between the felt and the overturned appliance in contact with the top surface of the felt. The disks are supported to prevent them from sinking into the felt.

The felt or the wood surface shall not smoulder or ignite. The maximum temperature rise of the felt shall not exceed 150K but an over-shoot of 25 K is allowed during the first hour.

19.113 Delete from the existing first paragraph “having an enclosure substantially of non-metallic material”.

Add the following new paragraphs:

If compliance with 19.13 relies on the operation of a **non-self-resetting protective device**, the time from energising the heating elements to the time that the **non-self-resetting protective device** operates is recorded for the purposes of 19.117.

The test is repeated on three additional samples and the time from energizing the heating elements to the time that the **non-self-resetting thermal cut out** operates on each sample is recorded. After the test, all samples shall comply with 19.13 and the longest time recorded for the four samples is used for the purposes of 19.117.

19.115 Add the following text to the end of the paragraph “and with the appliance being supplied at 1,06 times **rated voltage**”.

Add the following new subclauses:

19.116 Cab heaters are positioned with the outlet air directed at a dull black-painted plywood wall. The heater is placed so that the distance between the test wall and the air outlet grille is 10 cm.

The **cab heater** is supplied at 1,15 times **rated power input** and is operated until steady conditions are reached or a **non-self-resetting protective device** operates, whichever occurs first.

All thermal controls that operate during the test of Clause 11 are short-circuited.

During the test, the temperature rise at the test wall shall not exceed 65 K.

19.117 Fan heaters are operated as specified in Clause 11, except that all **thermal cut-outs** and controls are short-circuited and the fan motor is stalled. The **fan heater** is energized for the longest time recorded during the test of 19.113 plus 5 s, and then it is de-energized.

During the test, 19.13 is not applicable, but the **fan heater** shall not emit flames.

20 Stability and mechanical hazards

20.1 Replace the requirement by the following:

Heaters shall have adequate stability. This requirement does not apply to **fixed heaters**.

21 Mechanical strength

21.1 Replace the first paragraph of the test specification in the addition with the following:

Compliance is also checked by the tests of 21.101, 21.102 and 21.104.

Add the following to the test specification in the addition:

For **cab heaters**, the impact energy of the blows is increased to 1,0 J, the test being performed at –25 °C after the appliance has been stored at this temperature for 24 h.

21.101 Add the following new paragraph:

This test is also applied to the air inlet and air outlet grilles of **cab heaters**.

Add the following new subclauses:

21.104 Portable fan heaters, other than those intended to be operated at maximum heat output with the fan switched off, are subjected to the following test.

All **self-resetting thermal cut-outs** and controls that operate during the test of Clause 11 are short-circuited. The heater is then placed in a sling constructed by tying together the four corners of a single layer of cheesecloth. The sling is arranged so that the appliance is kept in its **normal operation position** and its lowest point is suspended at a height of 500 mm above a horizontal hardwood board approximately 20 mm thick placed on a concrete or similar hard surface. The heater in the sling is then dropped once.

The fan motor is stalled, and the **portable fan heater** is operated as specified in Clause 11.

The **portable fan heater** shall not emit flames. After the test, the requirements of 8.1 and 16.3 shall be met.

21.105 Cab heaters shall withstand vibrations liable to occur during normal use. If the mounting instructions for the cab heater give several mounting options, the test shall be carried out in the most unfavourable mounting position.

Compliance is checked by carrying out the vibration tests specified in IEC 60068-2-6 under the following conditions.

The appliance is mounted as in normal use and is then fastened to a vibration-generator. The type of vibration is sinusoidal, and the severity is as follows:

- the direction of vibration is vertical;
- the amplitude of vibration is 0,35 mm;
- the sweep frequency range is 10 Hz to 55 Hz;
- the duration of the test is 30 min.

After the test, the appliance shall show no damage that could impair compliance with this standard; in particular, compliance with 8.1, 15.1, 16.3 and Clause 29 shall not be impaired.

Screws shall not have changed position and connections shall not have worked loose.

If the test item comes off its mounting, it shall be subject to the test of Clause 11 in all positions which the appliance can take when it comes off. During this test, the temperature rise of the supporting surface shall not exceed 150 K.

21.106 Cab heaters other than those intended to be permanently mounted shall withstand the effects of being dropped.

Compliance is checked by subjecting the **cab heater** to test free fall - Procedure 1 of IEC 60068-2-31. The appliance is dropped vertically onto its base from a height of 500 mm.

After the test, compliance with 8.1, 16.3 and Clause 29 shall not be impaired.

21.107 Floor level grilles of heaters intended to be built into the floor shall have adequate mechanical strength.

Compliance is checked by the following test.

The floor level grille is installed as specified in 11.2. A mass, having a flat base with dimensions 300 mm × 150 mm, with a value of 100 kg or the maximum value specified by the

manufacturer, whichever is most unfavourable, is placed for 1 min on the central unsupported part of the grille.

During the test, the maximum deflection of the grille shall not exceed 3 mm.

After the test, the grille shall show no significant permanent deformation and shall not have fallen from its supporting structure. The creepage distances and clearances shall not be reduced below those specified in Clause 29.

22 Construction

Add the following new subclause:

22.2 Addition:

Fixed heaters that may be installed in front of a socket-outlet shall incorporate a switch complying with 24.3 or shall contain a statement in the instructions that a disconnecting switch incorporated in the fixed wiring shall be provided.

22.109 *Add the following sentence to the requirement:*

If the heater has a stand-by mode, it is considered to be on.

Add the following new subclauses:

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22.111 Normally open switches relying on contact with the floor to keep them in the closed position shall have moving contacts that come to rest in either the closed or open position even when the operating means is in an intermediate position.

Compliance is checked by inspection and by the relevant test.

The adequacy of the separation of the contacts in an intermediate position is determined by the test of the mechanism according to Clause 13 of IEC 61058-1:2000 and, if necessary, by the test of 15.3 of IEC 61058-1:2000, the test voltage being applied between the relevant terminals.

22.112 Cab heaters shall not contain bare heating elements.

Compliance is checked by inspection.

24 Components

24.1.4 *Add the following new paragraphs to the modification:*

*For **thermostats** of **cab heaters**, the number of cycles of operation is increased to 100 000.*

*For **self-resetting thermal motor protectors** for motors in **cab heaters**, the number of cycles of operation is increased to 10 000.*

24.101 *Add the following to the requirement:*

Protective devices other than thermal motor protectors, incorporated in **cab heaters** in order to comply with Clause 19, shall not be self-resetting.