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Household and similar electrical appliances - Safety - Part 2-17: Particular requirements for blankets, pads and similar flexible heating appliances

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COMMITTEE DRAFT FOR VOTE (CDV)  
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Titre : CEI 60335-2-17-A1 Ed. 2.0: Règles  
particulières pour les couvertures, coussins et  
appareils chauffants souples analogues

Title : IEC 60335-2-17-A1 Ed. 2.0: Household and  
similar electrical appliances - Safety - Particular  
requirements for blankets, pads and similar  
flexible heating appliances

Note d'introduction

Introductory note

This document has been prepared and is circulated  
in accordance with the decisions made at the Kuala  
Lumpur meeting of TC 61 – see 61/2712/RM

History: 61/2468/DC and 61/2657A/INF

<b>ATTENTION</b>	<b>ATTENTION</b>
<b>CDV soumis en parallèle au vote (CEI) et à l'enquête (CENELEC)</b>	<b>Parallel IEC CDV/CENELEC Enquiry</b>

\*\*Note: This document is being circulated because of change in 11.8 footnote to Table 101. Closing date for voting remains the same as 61/2734/CDV.

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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/XXXX/FDIS	61/XXXX/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 publication will remain unchanged until the maintenance result date<sup>1</sup> 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- withdrawn,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.

## INTRODUCTION

*Replace the second sentence of the second paragraph by the following:*

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.

### 3 Definitions

**3.1.9** *Add the following:*

**Control units** held in the hand when they are actuated and cord switches are positioned to hang away from the plywood base. Other **control units** are placed on a supporting surface away from the plywood base.

**3.107** *Replace "0,2 m<sup>2</sup>" by "0,3 m<sup>2</sup>".*

**3.111** *In the first sentence, add "or **electro-conductive textile**" after "heating element".*

*Add the following definitions:*

**3.115**

**wrap**

appliance comprising a **flexible part** intended to cover or be wrapped around the human body in order to keep it warm

<sup>1</sup> National committees are requested to note that for this publication the maintenance result date is 200X.

**3.116****electro-conductive textile**

textile incorporating carbon or other conductive material for the purpose of providing a uniformly heated surface

**5 General conditions for the tests**

**5.2** *In the first paragraph of the addition, replace “an additional appliance is” by “additional appliances are”.*

*In Note 101, replace “19.110” by “19.112”.*

**5.3** *In the list of Appliance A, delete “11.101” and replace “19” by “19 (except 19.111)”.*

*In the list of Appliance B, replace “11 (remainder)” by “11, 19.111” and replace “21, 21.101” by “21 (remainder)”.*

*Add the following subclause:*

**5.101** *Wraps are tested as **overblankets**.*

**7 Marking and instructions**

**7.1** *Replace the second and third dashed items by the following:*

- do not use folded or rucked, or by the symbol of Figure 101 (only for **underblankets** other than those with **PTC heating elements**);

*Delete the last dashed item and Note 101.*

**7.12** *Replace the fourth paragraph by the following:*

The instructions shall specify the appropriate settings of controls for continuous use of the appliance.

*Replace the fifth paragraph and Note 101 by the following:*

The instructions for **pads** shall state that when the appliance is likely to be used for an extended period, for instance by the user falling asleep, controls should be adjusted to a setting recommended for continuous use.

*Replace the second dashed item by the following:*

- when storing the appliance, allow it to cool down before folding;
- do not crease the appliance by placing items on top of it during storage (for **blankets** and **pads** only);

*Replace the text of the last paragraph by the following:*

The instructions for **underblankets** shall state the substance of the following:

- the appliance should not be used on an adjustable bed; or
- if the appliance is used on an adjustable bed, check that the blanket and cord do not become trapped or rucked, for example in hinges.

The instructions shall state that the appliance is not to be used by young children unless the controls have been pre-set by a parent or guardian, or unless the child has been adequately instructed on how to operate the controls safely.

## 11 Heating

11.2 Delete the second paragraph.

In the last paragraph, replace "all-night use" by "continuous use".

Add the following:

**Wraps** are also tested folded. A single fold is made across the **flexible part** in the most unfavourable place.

11.3 Replace the first paragraph of the addition by the following:

Thermocouples used for determining the temperature of **heating elements**, or sheaths containing them, are attached with textile thread over a length of at least 10 mm.

Thermocouples used for determining the temperature of the surface of **electro-conductive textiles** are attached to the centre of brass or copper plates measuring 65 mm x 65 mm x 0,5 mm. The plates are coated with insulating lacquer.

11.8 Add the following to the first paragraph of the addition:

If the **flexible part** is comprised of **electro-conductive textile**, the values specified for **heating elements** are applicable to the surface of the material.

In Table 101, replace the last line and footnote b by the following:

Surface of pads

– for a period not exceeding 2 h <sup>b)</sup>	85
– under steady conditions	50

<sup>b)</sup> The period commences when the temperature first exceeds 60 °C.

In Table 102, replace the temperature rise of 45 K by 35 K.

11.101 Replace the test specification by the following:

Compliance is checked by the following test.

The appliance is supplied as specified in 11.4 and operated under **normal operation** until steady conditions are established. The ambient temperature is maintained at the most unfavourable temperature between 0 °C and 15 °C. **Control units** and cord switches are adjusted to the highest setting recommended for continuous use, except for **wraps** when the lowest setting is used.

The temperature of the surface of the **flexible part** is determined by means of a thermocouple attached to the centre of a plate of copper or brass having dimensions 300 mm x 300 mm x 0,5 mm. For **overblankets**, the plate is placed under the **flexible part**. For **underblankets** and **mattresses**, the plate is placed over the **flexible part**.

*The temperature shall not exceed 60 °C during the first hour of operation and thereafter shall not exceed 37 °C.*

*Add the following subclause:*

**11.102** The surface temperature of **pads** shall not be excessive if they are used partially covered for an extended period.

*Compliance is checked by the following test.*

***Pads** are supplied as specified in 11.4 and operated under **normal operation** except that 2/3 of the **flexible part** is positioned so that it overhangs the edge of the plywood support. Controls are adjusted to their highest setting recommended for continuous use and the surface temperature of the pad is measured as specified in 11.3.*

*The temperature of the surface of the **flexible part of controlled pads** shall not exceed 85 °C and the temperature rise of the surface of other **pads** shall not exceed 60 K.*

NOTE The covered portion may be secured to prevent the **pad** slipping off the support.

### **13 Leakage current and electric strength at operating temperature**

**13.1** *Add the following to the modification:*

*The tests are not applicable to **class III appliances** and **class III constructions**.*

### **15 Moisture resistance**

**15.1** *Add the following:*

*The tests are not applicable to **class III appliances** and **class III constructions**.*

*Delete Note 102 of the addition.*

**15.101** *Add the following:*

*For **moisture-proof appliances**, inspection shall show that water has not penetrated the **flexible part** to such an extent that it could come into contact with **heating elements** and other current-carrying parts.*

*Delete Note 2.*

**15.102** *In the first paragraph, delete "the outer layer of" from the first line.*

*Replace the second paragraph by the following:*

*After a period of 1 h, the appliance shall withstand the electric strength test of 16.3 and inspection shall show that there is no trace of water on insulation that could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.*

### **16 Leakage current and electric strength**

*Add the following:*

**16.1 Addition:**

*The tests are not applicable to **class III appliances** and **class III constructions**.*

**19 Abnormal operation****19.1** *Replace the sentence related to pads by the following:*

**Pads** are subjected to the tests of 19.106, 19.108, 19.109 and 19.110.

*In Note 101, add "and 19.108" after "19.106".*

**19.103** *Add to the first paragraph:*

*An evenly distributed mass of 5 kg is placed on the upper sheet of thermal insulation.*

NOTE A sandbag may be used as the mass.

**19.104** *Replace the text by the following:*

**Controlled ruck-resistant blankets** and **controlled mattresses** are operated under **normal operation** except that the upper sheet of thermal insulation covers only one-third of the **flexible part**. The thermal insulation is applied in the most unfavourable position. Examples of positions are shown in Figure 106.

**19.109** *Replace the text by the following.*

**Pads** are operated under **normal operation** except that two-thirds of the **flexible part** is positioned so that it overhangs the edge of the plywood support.

NOTE The covered portion may be secured to prevent the pad slipping off the support.

**19.110** *Replace the clause number by 19.112.*

*In the test specification, replace "19.110.1 to 19.110.3" by "19.112.1 to 19.112.3".*

*Renumber "19.110.1" as "19.112.1".*

*Renumber "19.110.2" as "19.112.2".*

*Renumber "19.110.3" as "19.112.3".*

*Add the following:*

**19.110** **Pads** are operated under **normal operation** except that **the flexible part** is folded at the most unfavourable place with a three-thickness fold. The fold is up to 40 mm wide and of any length up to the width of the **pad**. The upper sheet of thermal insulation has dimensions of 300 mm x 450 mm x 36 mm and is placed on the folded **pad** at the most unfavourable location. An evenly distributed mass of 5 kg is placed on the upper sheet of thermal insulation.

NOTE A sandbag may be used as the mass.

**19.111** Appliances shall be constructed so that failure of a component does not give rise to an excessive temperature.

*Compliance is checked as follows.*



**Blankets and mattresses** are operated under the conditions of 11.101.

**Pads** are operated under **normal operation**. Controls are adjusted to the highest setting recommended for continuous use, the **pad** being supplied as specified in 11.4.

Failure of components that could reasonably be expected to occur in normal use is simulated, except that switching contacts are not short-circuited. Only one fault condition is applied at a time.

NOTE 1 Heating elements and internal wiring are not considered to be components.

NOTE 2 Failure of components that could be expected are the fault conditions specified in a) to f) of 19.11.2.

During the test, the temperature of the surface of the **flexible part** shall not exceed

- 60 °C, for **blankets and mattresses**;
- 85 °C, for **controlled pads**. For other **pads**, the temperature rise shall not exceed 60 K.

## 21 Mechanical strength

Replace "Addition" by "**21.1 Addition**".

Add the following dashed item to the third paragraph:

- damage between busbars and **electro-conductive material** or between busbars and their connections.

Add the following:

### 21.2 Addition:

This subclause is not applicable to **flexible parts**.

**21.109** Replace Note 1 by the following:

NOTE 1 Care is to be taken to ensure that the sample is only handled by means of the card.

## 22 Construction

**22.103** In the first sentence, replace "heating elements" by "heating elements, electro-conductive textiles".

In the second paragraph, replace "heating element" by "heating element or electro-conductive textile".

**22.104** Replace "the heating elements" by "heating elements or busbars".

**22.113** Delete ", other than those of class III,".

Add the following subclause:

**22.114** Flexible parts comprised of electro-conductive textile shall be of class III construction.

Compliance is checked by inspection.