

**MAJAPIDAMIS- JA MUUD TAOLISED ELEKTRISEADMED.  
OHUTUS. OSA 2-17: ERINÕUDED TEKKIDELE,  
PATJADELE, RIIETUSESEMETELE JA MUUDELE  
TAOLISTELE PAINDPEHMETELE  
SOOJENDUSSEADMETELE**

**Household and similar electrical appliances - Safety -  
Part 2-17: Particular requirements for blankets, pads,  
clothing and similar flexible heating appliances  
(IEC 60335-2-17:2012 + IEC 60335-2-17:2012/A1:2015,  
modified + IEC 60335-2-17:2012/A2:2019 , modified)**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 60335-2-17:2013 +A11+A1+A2:2021 sisaldab Euroopa standardi EN 60335-2-17:2013 ja selle muudatuste A11:2019, A1:2020 ja A2:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-17:2013 +A11+A1+A2:2021 consists of the English text of the European standard EN 60335-2-17:2013 and its amendments A11:2019, A1:2020 and A2:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.  Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.02.2013, muudatused A11 26.07.2019, A1 24.04.2020 ja A2 18.06.2021.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.  Date of Availability of the European standard is 22.02.2013, for A11 26.07.2019, A1 24.04.2020 and A2 18.06.2021.
Muudatusega A11 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud püstkriipsuga teksti vasakul veerisel.  Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud topeltpüstkriipsuga teksti vasakul veerisel.  Muudatusega A2 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega <b>A2</b> <b>A2</b> .  Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A11 is indicated by a vertical line in the left margin of the text.  The start and finish of text introduced or altered by amendment A1 is indicated by a double vertical line in the left margin of the text.  The start and finish of text introduced or altered by amendment A2 is indicated in the text by tags <b>A2</b> <b>A2</b> .  The standard is available from the Estonian Centre for Standardisation and Accreditation.

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ICS 13.120; 97.040.50

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English Version

**Household and similar electrical appliances - Safety - Part 2-17:  
Particular requirements for blankets, pads, clothing and similar  
flexible heating appliances  
(IEC 60335-2-17:2012 + IEC 60335-2-17:2012/A1:2015 ,  
modified + IEC 60335-2-17:2012/A2:2019 , modified)**

Appareils électrodomestiques et analogues - Sécurité -  
Partie 2-17: Exigences particulières pour les couvertures,  
coussins, vêtements et appareils chauffants souples  
analogues  
(IEC 60335-2-17:2012 + IEC 60335-2-17:2012/A1:2015 ,  
modifiée + IEC 60335-2-17:2012/A2:2019 , modifiée)

Sicherheit elektrischer Geräte für den Hausgebrauch und  
ähnliche Zwecke - Teil 2-17: Besondere Anforderungen an  
Wärmezudecken, Wärmeunterbetten, Heizkissen, Kleidung  
und ähnliche schmiegsame Wärmegeräte  
(IEC 60335-2-17:2012 + IEC 60335-2-17:2012/A1:2015 ,  
modifiziert + IEC 60335-2-17:2012/A2:2019 , modifiziert)

This European Standard was approved by CENELEC on 2012-04-30. Amendment A11 was approved by CENELEC on 2016-02-08. Amendment A1 was approved by CENELEC on 2016-11-07. Amendment A2 was approved by CENELEC on 2021-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendments the status of a national standard without any alteration.

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Comité Européen de Normalisation Electrotechnique  
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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## Foreword

The text of document 61/4336/FDIS, future edition 3 of IEC 60335-2-17, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-17:2013.

The following dates are fixed:

- |  |       |            |
|--|-------|------------|
| • latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2013-08-22 |
| • latest date by which the national standards conflicting with the document have to be withdrawn   | (dow) | 2015-04-30 |

This document supersedes EN 60335-2-17:2002 + A1:2006 + A2:2009.

EN 60335-2-17:2013 includes the following significant technical changes with respect to EN 60335-2-17:2002:

- The definition of PTC heating element has been deleted and the definition in Part 1 now applies. A definition of a heating element with PTC characteristics has been introduced instead (3.117). This has resulted in editorial changes to 5.7, 5.8.2, 7.1, 10.101, 11.2, 21.105, 21.111.1 and 21.112.
- The allowance for class I appliances has been deleted and requirements for appliances incorporating a functional earth have been incorporated (6.1, 7.1, 22.115).
- The working voltage of parts of class III construction is limited to 24 V (22.26).
- Some notes have been deleted or converted to normative text (3.107, 3.111, 3.113, 5.2, 5.3, 5.8.2, 11.8, 11.101, 11.102, 15.1, 15.101, 19.1, 19.13, 19.102, 19.103, 19.105, 19.106, 19.108, 19.109, 19.110, 19.111, 19.112, 21.1, 21.102, 21.103, 21.109, 21.110.3, 21.111.1, 21.111.2, 21.111.3, 21.112, 22.103, 22.114, 25.23, Annex AA, Annex CC 3.1.9, 19.201, 19.203).
- Modification of the marking requirements (7.1, 7.14, 7.15).
- Modification of the instructions (7.12).
- Clarification of the heat stroke test (11.101).
- The figure numbers have been updated to take into account deletion of Figure 103 in EN 60335-2-17:2002.

This part 2 is to be used in conjunction with EN 60335-1:2012.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to EN 60335-1.

This part 2 supplements or modifies the corresponding clauses in EN 60335-1, so as to convert that publication into the European Standard: *Safety requirements for blankets, pads, clothing and similar flexible heating appliances*.

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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This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC)

### Endorsement notice

The text of the International Standard IEC 60335-2-17:2012 was approved by CENELEC as a European Standard without any modification.

*Add to the bibliography of EN 60335-1:2012:*

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-2-66	NOTE Harmonized as EN 60335-2-66.
IEC 60335-2-71	NOTE Harmonized as EN 60335-2-71.
IEC 60335-2-81	NOTE Harmonized as EN 60335-2-81.
IEC 60601-2-35	NOTE Harmonized as EN 60601-2-35.

## Amendment A11 European foreword

This document (EN 60335-2-17:2013/A11:2019) has been prepared by CLC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-01-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-26

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 including its amendments and EN 60335-2-17:2013.

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

For relationship with EU Directive(s), see informative Annex ZZ, which is an integral part of this document.

## Amendment A1 European foreword

This document (EN 60335-2-17:2013/A1:2020) consists of the text of IEC 60335-2-17:2012/A1:2015 prepared by IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2020-10-24  
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-04-24

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For the relationship with EU Directive see informative Annex ZZ, which is included in this document.

### Endorsement notice

The text of the International Standard IEC 60335-2-17:2013/A1:2019 was approved by CENELEC as a European Standard without any modification.

## **A<sub>2</sub>** Amendment A2 European foreword

This document (EN 60335-2-17:2013/A2:2021) consists of the text of IEC 60335-2-17:2012/A2:2019 prepared by IEC/TC 61 “Safety of household and similar electrical appliances”, together with the common modifications prepared by CLC/TC 61 “Safety of household and similar electrical appliances”.

The following dates are fixed:

- latest date by which this document has to be (dop) 2022-03-01 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards (dow) 2024-03-01 conflicting with this document have to be withdrawn

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For the relationship with EU Directive see informative Annex ZZA, which is an integral part of this document.

### **Endorsement notice**

The text of IEC 60335-2-17:2012/A2:2019 was approved by CENELEC as a European Standard with agreed common modifications. **A<sub>2</sub>**



# CONSOLIDATED VERSION

# VERSION CONSOLIDÉE



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

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-17: Exigences particulières pour les couvertures, coussins, vêtements  
et appareils chauffants souples analogues**



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# CONSOLIDATED VERSION

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**Household and similar electrical appliances – Safety –  
Part 2-17: Particular requirements for blankets, pads, clothing and similar  
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Partie 2-17: Exigences particulières pour les couvertures, coussins, vêtements  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

#### Part 2-17: Particular requirements for blankets, pads, clothing and similar flexible heating appliances

### 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 third edition cancels and replaces the second edition published in 2002 including its Amendment 1 (2006) and its Amendment 2 (2008). It constitutes a technical revision.

The principal changes in this edition as compared with the second edition are as follows (minor changes are not listed):

- The definition of PTC heating element has been deleted and the definition in Part 1 now applies. A definition of a heating element with PTC characteristics has been introduced instead (3.117). This has resulted in editorial changes to 5.7, 5.8.2, 7.1, 10.101, 11.2, 21.105, 21.111.1 and 21.112.
- The allowance for class I appliances has been deleted and requirements for appliances incorporating a functional earth have been incorporated (6.1, 7.1, 22.115).

- The working voltage of parts of class III construction is limited to 24 V (22.26).
- Some notes have been deleted or converted to normative text (3.107, 3.111, 3.113, 5.2, 5.3, 5.8.2, 11.8, 11.101, 11.102, 15.1, 15.101, 19.1, 19.13, 19.102, 19.103, 19.105, 19.106, 19.108, 19.109, 19.110, 19.111, 19.112, 21.1, 21.102, 21.103, 21.109, 21.110.3, 21.111.1, 21.111.2, 21.111.3, 21.112, 22.103, 22.114, 25.23, Annex AA, Annex CC 3.1.9, 19.201, 19.203).
- Modification of the marking requirements (7.1, 7.14, 7.15).
- Modification of the instructions (7.12).
- Clarification of the heat stroke test (11.101).
- The figure numbers have been updated to take into account deletion of Figure 103 in the previous edition.

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

FDIS	Report on voting
61/4336/FDIS	61/4352/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.

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 blankets, pads, clothing and similar flexible heating appliances.

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.

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.

The committee has decided that the contents of this 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.

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 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.

- 6.1: Class 0 products are allowed (Japan and USA).
- Annex AA: Felt is used for the thermal insulation (USA).



## AMENDMENT A1 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:

CDV	Report on voting
61/4834/CDV	61/4910/RVC

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 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 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.

## **A2** AMENDMENT A2 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
61/5756/FDIS	61/5795/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 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 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. **A2**

## 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.

**A2** This European Amendment A2 supplements or modifies the corresponding clauses of the standards below:

- EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019 (Part 1)
- EN 60335-2-17:2013+A11:2019+A1:2020 (Part 2) **A2**

## HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

### Part 2-17: Particular requirements for blankets, pads, clothing and similar flexible heating appliances

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **blankets, pads**, clothing and other flexible appliances that heat the bed or human body, for household and similar purposes, their **rated voltage** being not more than 250 V.

This standard also applies to **control units** supplied with the appliance.

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 in beauty parlours or by persons in cold ambient temperatures, are within the scope of this standard.

Requirements and tests for clothing are given in Annex CC.

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

However, in general, it does not take into account:

- **children** playing with the appliance;
- the use of the appliance by **very young children**;
- the use of the appliance by **young children** without supervision.

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this standard.

NOTE 101 Children are considered to be old enough to use an appliance without supervision when they have been adequately instructed by a parent or guardian and are deemed competent to use the appliance safely.

NOTE 102 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 authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

- 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);
- rigid bed warmers, such as those of metal or ceramic material;
- water bed heaters (IEC 60335-2-66);
- heating appliances for breeding and rearing animals (IEC 60335-2-71);
- foot warmers and heating mats (IEC 60335-2-81);
- appliances specifically intended for use under medical supervision (IEC 60601-2-35).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

IEC 60320-1:2001, *Appliance couplers for household and similar general purposes – Part 1: General requirements*  
Amendment 1 (2007)<sup>1</sup>

ISO 2439, *Flexible cellular polymeric materials – Determination of hardness (indentation technique)*

ISO 7000:2014, *Graphical symbols for use on equipment – Registered symbols*

ISO/IEC Guide 37, *Instructions for use of products of consumer interest*

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1.9 Replacement:

#### normal operation

operation of the appliance under the following conditions:

- **blankets** and **pads** are placed between sheets of thermal insulation;
- **duvets** are placed on a sheet of thermal insulation but not covered;
- **mattresses** are covered by a sheet of thermal insulation

NOTE 101 The specification for the thermal insulation is given in Annex AA.

The **flexible part** is supported on a plywood base 20 mm thick and positioned not less than 300 mm above the floor. The size of the plywood base is such that the thermal insulation can be fully supported over its entire area. The size of the sheets of thermal insulation is such that the edges extend at least 100 mm beyond the outline of the **heated area**.

**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.

### 3.101

#### flexible part

all layers of material forming the permanent enclosure of the appliance together with the **heating element**, **electro-conductive textile**, **thermostats** and all other current-carrying parts contained within it

Note 1 to entry: The **flexible part** may be inside a **detachable cover**.

### 3.102

#### blanket

appliance comprising a substantially flat **flexible part** that is intended to form part of the bedding, for heating the bed

<sup>1</sup> There exists a consolidated edition 2.1 (2007) that includes edition 2 and its Amendment 1.