

Australian/New Zealand Standard™

**Household and similar electrical
appliances—Safety**

**Part 2.66: Particular requirements for
water-bed heaters**



AS/NZS 60335.2.66:2012

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 8 October 2012 and on behalf of the Council of Standards New Zealand on 27 September 2012.

This Standard was published on 26 October 2012.

The following are represented on Committee EL-002:

Australian Industry Group
Australian Retailers Association
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical Regulatory Authorities, Australia
Electrical Compliance Testing Association
Electrical consultants
Engineers Australia
Ministry of Business, Innovation and Employment, New Zealand
New Zealand Electric Fence Energizer Manufacturers' Standards Group

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 12917.

Australian/New Zealand Standard™

Household and similar electrical appliances—Safety

Part 2.66: Particular requirements for water-bed heaters

Originated in Australia as AS C148—1950.
Previous edition AS 3148—1991.
Jointly revised and redesignated AS/NZS 3350.2.66:1997.
Jointly revised and redesignated AS/NZS 60335.2.66:2004.
Jointly revised and designated AS/NZS 60335.2.66:2012.

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

AS/NZS 60335.2.66:2012**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2.66: Particular requirements for water-bed heaters****Foreword**

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002- Safety of Household and Similar Electrical Appliances and Small Power Transformers to supersede AS/NZS 60335.2.66:2004 two years from the date of publication. During this period it is anticipated that regulatory authorities will approve water-bed heaters to either standard.

The principal changes in this edition as compared with the edition 2.1 of IEC 60335-2-66 are as follows (minor changes are not listed).

- It introduces requirements to cover incorrect installation of the appliance (7.1, 19.101 and 24.1.4)

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand

The text of IEC 60335-2-66 Ed 2.2, prepared by IEC Technical Committee 61, was submitted to the Standards Australia/Standards New Zealand Combined Procedure (dual public comment and committee vote) for adoption of the IEC standard as a Standards Australia/Standards New Zealand joint standard.

This Standard is an adoption with national modifications of the second edition of IEC 60335-2-66, *Household and similar electrical appliances – Safety – Part 2-66: Particular requirements for water-bed heaters* including its amendment 1 (2008) and amendment 2 (2011). It has been varied as indicated to take account of Australian and New Zealand conditions.

This part 2 has to be used in conjunction with the latest edition of AS/NZS 60335.1 Household and similar electrical appliances – Safety – Part 1: General requirements and its Amendments. It was established on the basis of AS/NZS 60335.1:2011.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 60335.1 so as to convert it into the Australian/New Zealand Standard: Safety requirements for water-bed heaters.

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 of Part 1 is to be adapted accordingly.

NOTE 1 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.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letters AZ.

NOTE 2 The following print types are used:

COPYRIGHT

- 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.

p NOTE 3 In this document, p is used in the margin to indicate instructions for preparing a consolidated version.

The essential safety requirements in AS/NZS 3820¹ that could be applicable to requirements for water-bed heaters are covered by this standard.

The national variations to IEC 60335-2-66 Ed 2.2 form the Australian and New Zealand national variations for purposes of the IECEE scheme for recognition of results of testing to standards for safety of electrical equipment (the CB scheme).

There are no national variations from the IEC Standard from which this standard is adopted, other than those listed in the national variations to AS/NZS 60335.1.

¹ AS/NZS 3820 *Essential safety requirements for electrical equipment*

The text of the International Standard IEC 60335-2-66 Ed 2.2 was approved as a joint Australia/New Zealand Standard with the agreed national variations as given below.

AUSTRALIAN NATIONAL VARIATIONS

There are no national variations to this Part 2 other than those listed in the national variations to AS/NZS 60335.1:2011.

NEW ZEALAND NATIONAL VARIATIONS

There are no national variations to this Part 2 other than those listed in the national variations to AS/NZS 60335.1:2011.

Annex ANZ (normative)

Normative references to international publications with their corresponding joint Australia/New Zealand publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by national variations the relevant joint Australia/New Zealand publications applies if the national variations are needed to ensure the safety of the appliance for Australia/New Zealand conditions. These international publications are indicated by (mod). If an international publication is not so indicated, then either it or the listed Australia/New Zealand publication may be used.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>AS/NZS</u>	<u>Year</u>
ISO 2439		<i>Flexible cellular polymeric materials – Determination of hardness (indentation technique)</i>		

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Definitions	7
4 General requirement.....	7
5 General conditions for the tests	7
6 Classification.....	8
7 Marking and instructions.....	8
8 Protection against access to live parts.....	9
9 Starting of motor-operated appliances	9
10 Power input and current	9
11 Heating	9
12 Void	10
13 Leakage current and electric strength at operating temperature.....	10
14 Transient overvoltages	10
15 Moisture resistance	10
16 Leakage current and electric strength.....	10
17 Overload protection of transformers and associated circuits	11
18 Endurance.....	11
19 Abnormal operation	11
20 Stability and mechanical hazards	11
21 Mechanical strength	11
22 Construction.....	12
23 Internal wiring.....	12
24 Components	12
25 Supply connection and external flexible cords	13
26 Terminals for external conductors.....	13
27 Provision for earthing	13
28 Screws and connections	13
29 Clearances, creepage distances and solid insulation	14
30 Resistance to heat and fire.....	14
31 Resistance to rusting.....	14
32 Radiation, toxicity and similar hazards.....	14
Annexes	16
Bibliography.....	16
Figure 101 – Wood block	15

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-66: Particular requirements for water-bed heaters

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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

This consolidated version of IEC 60335-2-66 consists of the second edition (2002) [documents 61/2175/FDIS and 61/2256/RVD], its amendment 1 (2008) [documents 61/3534/FDIS and 61/3586/RVD], its amendment 2 (2011) [documents 61/4101/CDV and 61/4199/RVC] and its corrigendum of July 2004.

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 2.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

The French version of this standard has not been voted upon.

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 fourth edition (2001) 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 electric water-bed heaters.

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.

The following differences exist in the countries indicated below.

- 6.1: Class I appliances are not allowed (China, Czech Republic, Norway, Slovakia and Yugoslavia).
- 7.12.1: Additional details of the water mattress are to be stated (USA).
- 11.8: The temperature rise limit is different (USA).
- 11.101: The test is not carried out (USA).
- 21.101: The test is different (USA).
- 24.101: Self-resetting thermal cut-outs are allowed (USA).

The committee has decided that the contents of the base publication and its amendments 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 the amendment 1 be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

2 | 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.

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.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-66: Particular requirements for water-bed heaters

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **water-bed heaters** and their associated control units, for household and similar purposes, their **rated voltage** being not more than 250 V.

Appliances not intended for normal household use, but that nevertheless may be a source of danger to the public, such as appliances intended to be used in hotels, 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 knowledgeprevents 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 in 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, the national water supply authorities and similar authorities.

NOTE 102 This standard does not apply to appliances

- for medical purposes (IEC 60601);
- intended for immersion in water during use.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

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