AS/NZS 4474.2:2009
(Incorporating Amendment Nos 1 and 2)

Australian/New Zealand Standard™

Performance of household electrical appliances—Refrigerating appliances

Part 2: Energy labelling and minimum energy performance standard requirements

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-015, Quality and Performance of Household Electrical Appliances. It was approved on behalf of the Council of Standards Australia on 25 November 2008 and on behalf of the Council of Standards New Zealand on 18 March 2009. This Standard was published on 8 April 2009.

The following are represented on Committee EL-015:

Australian Greenhouse Office, Department of the Environment, Water, Heritage and the Arts
Australian Industry Group
Australian Retailers Association
Business New Zealand
CHOICE
Consumer Electronics Suppliers Association
Department of Employment and Industrial Relations, Qld
Department of Water and Energy, NSW
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This Standard was issued in draft form for comment as DR 08196.

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Originated in Australia as AS 2575—1982.
Originated in New Zealand as NZS 6205:1982.
Previous edition AS/NZS 4474.2:2001.
Fourth edition 2009.
Reissued incorporating Amendment No. 1 (March 2011).
Reissued incorporating Amendment No. 2 (January 2014).

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.

ISBN 0 7337 8986 2

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-015, Quality and Performance of Household Electrical Appliances to supersede AS/NZS 4474.2:2001 on publication.

This Standard incorporates Amendment No. 1 (March 2011) and Amendment No. 2 (January 2014). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

A1 Amendment 1 (2011) to this Standard includes the requirements in Amendment 2 (2011) to AS/NZS 4474.1:2007 and defines the transition arrangements for these requirements.

Amendment 1 (2011) forms part of this Standard on publication. Transition arrangements regarding the application of Amendment 1 (2011) are set out in Section 4.

The AS/NZS 4474 series comprises two Parts, as follows:

AS/NZS	
4474	Performance of household electrical appliances—Refrigerating appliances
4474.1	Part 1: Energy consumption and performance
4474.2	Part 2: Energy labelling and minimum energy performance standard requirements (this Standard)

The overall objective of this series of Standards is to promote high levels of quality, performance and energy efficiency in refrigerating appliances.

The Parts of AS/NZS 4474 are summarized as follows:

(a) Part 1 includes performance test procedures and minimum performance criteria for refrigerating appliances.

(b) Part 2 includes algorithms for the calculation of the energy efficiency star rating and projected energy usage, performance requirements (including MEPS), details of the energy label and requirements for the valid application thereof. It has been structured to be suitable for reference in regulatory legislation and to be used in conjunction with Part 1.

This revision is to allow for the introduction of a new energy labelling algorithm and new energy label design. The new energy labelling algorithms and label design were developed and agreed on by industry and government representatives during 2007/2008 and were canvassed widely in various discussion papers, a cost–benefit analysis and a regulatory impact statement. The new energy label includes a label variant which awards additional stars for very efficient products where they rate 7 or more stars under the new algorithm.

This revision also mandates the use of AS/NZS 4474.1:2007 for test reports and energy labelling and MEPS registrations for registrations to this Standard. New Zealand has required the use of this Standard for new registrations and re-registrations since April 2008. The use of AS/NZS 4474.1:2007 is critical as it contains new rules for temperature sensor placements in some cases, differences in calculation of compartment temperature for frost free products and a number of anti-circumvention measures. For some refrigerating appliances, it may be possible to reissue a test report to the new Standard without the need for retesting if the original source data is still available and other settings and rules remain compatible.

Another important change in this Standard is a small adjustment to the MEPS levels to take account of the expected changes to the tested energy consumption when using AS/NZS 4474.1:2007. This occurs because the temperature determination period now includes the defrost and recovery period. The adjustment is 1% or less and only applies to Groups 5T, 5B, 5S and 7. The technical details are contained in a discussion paper released by the Equipment Energy Efficiency (E3, which is made up of officials from State and Federal governments in Australia and New Zealand) in October 2007 and is available from www.energyrating.gov.au in the electronic library.

This Standard also changes the definition of MEPS for all products within its scope from a value based on the average PAEC (as defined in AS/NZS 4474.2:2001 and previous editions) to a maximum permitted energy for any individual unit of a model. The Kf, Kv and feature allowances for MEPS have all been adjusted to reflect this change in MEPS definition. While the new MEPS levels are adjusted to be 'equivalent' to the previously published 2005 levels, it is necessary to re-register all products to the newly defined levels when making an application for the new energy label as there may be small variations at a model level. This change of MEPS definition (called MEPS 2010 in this Standard) also means that there is a change in the verification procedure for MEPS for refrigerators and freezers which are registered to this Standard. These procedures are included in the E3 Administrative Guidelines.

From April 2009, it is anticipated that regulatory authorities will begin accepting applications to register for AS/NZS 4474.2:2009.

In Australia, all appliances within the scope of this Standard, manufactured or imported for sale in Australia on or after 1 April 2010, are required to be registered to this Standard.

In New Zealand, this Standard is expected to be incorporated by reference into New Zealand law prior to 1 April 2010 to align with the Australian regulatory processes. Once incorporated all items that are within the scope of AS/NZS 4474.2:2009, that are manufactured in, or imported into New Zealand may not be sold to a consumer unless they comply with this Standard.

An overview of the regulatory requirements in New Zealand for energy labelling and MEPS is included in Appendix F.

Administrative arrangements during the transition period may vary so registration holders should contact their regulator to obtain detailed requirements with respect to labelling and registration requirements (see also Section 4 and Appendix F of this Standard).

This Standard is published with the approval of the combined state regulatory authorities and is structured to be suitable for reference in energy labelling regulatory legislation. It refers to Part 1 for test procedures.

Check testing, where applicable, will be undertaken to the version of the test Standard or the appropriate MEPS levels which have been used to support the current energy label for that model. A summary of the Administrative Guidelines has been included in Appendix F for the information of users of this Standard.

From 2009 it is anticipated that Fiji and other South Pacific Island nations may use the Australian/New Zealand energy labelling and MEPS system within their own jurisdictions on a cooperative basis.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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FOREWORD

The desire of governments to improve the energy efficiency of appliances has led to the development of Minimum Energy Performance Standards (MEPS) and the associated energy labelling scheme. The first MEPS levels (MEPS 1999) for refrigerators and freezers were implemented on 1 October 1999 and revised MEPS levels (MEPS 2005) became applicable on 1 January 2005 (refer also to Clause 1.1). In this edition, the MEPS definition, which was previously based on a model average energy value, is altered to become a maximum energy value for any unit within a model (republished as MEPS 2010) in this Standard. MEPS 2010 levels are intended to be technically equivalent to MEPS 2005.

In this Standard, MEPS have allowances for special features such as extra doors and through-the-door water/ice dispensers which are excluded from the star rating calculations and associated labelling requirements.

The original energy labelling algorithm was introduced in 1986 and this was revised from a linear progression (fixed energy reduction per additional star) to a geometric progression in 2000 (fixed percentage reduction per addition star) and was implemented in conjunction with a new label design and format. The function for calculating the star rating of an appliance group in 2000 was broadly set at a one star rating generally coinciding with the 1999 MEPS requirements for groups that performed similar energy service. The 2010 algorithm introduced in this edition is a new approach which determines the Base Energy Consumption (BEC) using a volume function to the power of 0.67 to better reflect the surface area change (which is a key driver for energy consumption) as volume changes. The same geometric progression previously used has been retained but the energy reduction factor has been set to 0.23 (23% energy reduction per star) for all groups. Some refined label design elements have been included in this Standard and a new label variant has also been introduced to award products that achieve at least 7 stars under the new energy labelling algorithm. This will also extend the life of the algorithm and will allow a longer period between future energy label algorithm regrades.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard

Performance of household electrical appliances—Refrigerating appliances

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the energy labelling and **minimum energy performance standard (MEPS)** requirements for vapour compression refrigerating appliances that can be connected to mains power and which are within the scope of AS/NZS 4474.1:2007. Such refrigerating appliances that are used in the commercial sector are included within the scope. This Standard does not specify safety requirements.

Separate stand alone wine storage cabinets are not specifically within the scope of this Standard. See Clause 1.9.

In particular, this Standard specifies the following:

(a) **Projected annual energy consumption (PAEC)**.

(b) **Adjusted volume**.

(c) **Comparative energy consumption (CEC)**.

(d) **Star rating**.

(e) Performance criteria for energy label validity.

(f) Some of the requirements for energy label validity.

(g) **Minimum energy performance standards (MEPS)** for refrigerating appliances for MEPS 2010 requirements.

(h) Test report format and printing requirements for refrigerating appliance energy labels.

1.2 EXCLUSIONS

The following products are excluded from the scope of energy labelling and MEPS:

(a) Products that are designed exclusively for use in caravans, vehicles (e.g. mobile homes, campervans and/or rail cars) or boats and which have a total gross volume of less than 60 litres.

(b) **Portable products** that have a gross volume of less than 30 litres.

(c) Products that have a gross volume of less than 30 litres where the refrigeration function is secondary (e.g. boiling or cooled water dispensers).

(d) Products that have no options for connection to a 230 V or 400 V 50 Hz mains electricity supply.

(e) Products that cool using technologies other than the vapour compression cycle.

1.3 APPLICATION

This Standard **shall** be read in conjunction with AS/NZS 4474.1:2007.