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AS/NZS 4474.1:2007
(Incorporating Amendment Nos 1 and 2)

AS/NZS 4474.1:2007

Australian/New Zealand Standard™

Performance of household electrical appliances—Refrigerating appliances

Part 1: Energy consumption and performance

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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 5 July 2007 and on behalf of the Council of Standards New Zealand on 22 June 2007.
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The following are represented on Committee EL-015:

Australian Consumers' Association
Australian Electrical and Electronic Manufacturers Association
Australian Greenhouse Office, Department of the Environment and Heritage
Australian Industry Group
Australian Retailers Association
Business New Zealand
Consumer Electronics Suppliers Association
Department of Energy, Utilities and Sustainability (NSW)
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Performance of household electrical appliances—Refrigerating appliances

Part 1: Energy consumption and performance

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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 4474.1:1997 on publication.

This Standard incorporates Amendment No. 1 (October 2008) and No. 2 (March 2011). 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.

The AS/NZS 4474 series is comprised of two parts as follows:

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

A2 Amendment 2 (2011) to this Standard includes a number of changed requirements regarding the operation of ice-makers during energy tests and an additional requirement for adaptive defrost systems. It also deals with the testing of products that contain automatic anti-condensation heaters where the power is varied in response to changes in ambient conditions (e.g. humidity and/or temperature). It now requires the declaration of any controls that may alter the operation of the refrigerating appliance under specific operating conditions. Amendment 2 (2011) no longer permits products with circumvention devices to comply with the requirements of this Standard.

Amendment 2 forms part of this Standard on publication. AS/NZS 4474.2 sets out transition provisions for the use of this Standard (excluding Amendment 2) for registration purposes.

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

(a) Part 1 includes all test conditions, requirements for temperature performance and the method for determination of energy consumption.

(b) Part 2 includes algorithms for the calculation of the energy efficiency rating, star rating and comparative energy consumption, performance requirements, details of the energy label and requirements for the valid application thereof. It also contains the minimum energy performance standards (MEPS) for refrigerators and freezers. It has been structured to be suitable for reference in regulatory legislation and to be used in conjunction with Part 1.

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

The objective of this Standard is to provide test laboratories with test methods and minimum performance requirements so that the performance, including energy consumption, of household refrigerating appliances can be measured, compared and evaluated.

While this Standard is generally aligned with ISO 15502:2005 in some areas it follows the ANSI/AHAM approach. A summary of differences between this edition and ISO 15502 and the ANSI/AHAM standard is included in the Foreword.

This Standard incorporates the following significant changes from the previous editions of this Standard:

(i) The defined terms have been bolded wherever they are used through this Standard. The defined terms could be grouped under appropriate headings, and users seeing a bolded defined term, should also look within the headings and not just look for the specified term in alphabetical order.

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(ii) Revised group definition—The definitions of a chest type have been amended to include rules about combination configurations that have now appeared on the market. There are also revised rules to cover appliances with frozen food compartments with different defrost types.

(iii) The definition of the start of the defrost control cycle has been altered to include any sequence of events that occur prior to the initiation of the defrost heating.

(iv) The text defining thermal equilibrium and the test period for temperature operation performance tests and energy consumption has been refined to make its application clearer and now defines stability requirements for tests which include test packages.

(v) Reference to testing at 240 V has been deleted as this ceased to be an option with the introduction of MEPS 2005.

(vi) The definition of adaptive defrost systems has been refined further in this edition. The time between defrosts for an adaptive defrost system is still limited to 24 h for the determination of energy consumption. In the future, experience with adaptive defrost systems may result in appropriate amendments to this approach.

(vii) New rules have been introduced regarding the placement of sensors in small, wide/short and very tall compartments.

(viii) Many figures have been added or re-drawn, including those showing sensor placement and locations of test packages. The objectives of this have been to update the illustrations to show newer typical cabinet configurations, correct errors and to accommodate the changes in (vii).

(ix) Although this Standard is not intended to cover wine storage cabinets, a definition covering them has been introduced to clarify the demarcation between cabinets specifically designed for wine storage and those covered by this Standard.

(x) With the advent of microprocessors and electronic controls, refrigerating appliances have emerged with various unusual operating patterns. These are patterns that were not displayed by appliances managed by electromechanical controls. The emergence of these patterns has necessitated the tightening of test specifications to detect and deal with those patterns that would consequently provide poor food care. It has also been necessary to deal with patterns that give abnormally low energy consumption in an energy test by modifying or eliminating functions that are otherwise operational in normal use such as anti-sweat heaters. Notice is served that should products appear in the marketplace that meet the letter but not the intent of this Standard, then this Standard will be amended accordingly

(xi) Another consequence of electronic controls is that adjustments are often made in steps rather than continuously. The Standard has been amended to preclude interpolation to target temperatures where the nearest achievable temperatures are too far from the target values.

(xii) With the emergence of electronic controls on appliances and the now universal use of electronic data logging for testing, the opportunity has been taken to include all the defrost and recovery temperature profile in the total of the average temperature for energy determination. Analysis of available data has shown that this will have a minimal effect on reported temperatures for normal well managed appliances.

It is envisaged that the MEPS checking criteria used by government will be changed to make it clear that all the population of a model rather than just the mean of that population must have a lower energy test consumption than MEPS. MEPS values in Part 2 will be adjusted to compensate for that tightening. If the above change in temperature measurement is demonstrated to measurably increase

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