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NORME INTERNATIONALE

colour inside

Household refrigerating appliances – Characteristics and test methods – Part 2: Performance requirements

Appareils de réfrigération à usage ménager – Caractéristiques et méthodes d'essai – Partie 2 – Exigences de performances

IEC 62552-2:2015-02+AMD1:2020-11 CSV(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

Part 2: Performance requirements

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62552-2 edition 1.1 contains the first edition (2015-02) [documents 59M/62/FDIS and 59M/65/RVD] and its amendment 1 (2020-11) [documents 59M/127/FDIS and 59M/133/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 62552-2 has been prepared by subcommittee 59M: Performance of electrical household and similar cooling and freezing appliances, of IEC technical committee 59: Performance of household and similar electrical appliances

IEC 62552-1, IEC 62552-2 and IEC 62552-3 together constitute a technical revision and include the following significant technical changes with respect to IEC 62552:2007:

a) All parts of the standard have been largely rewritten and updated to cope with new testing requirements, new product configurations, the advent of electronic product controls and computer based test-room data collection and processing equipment.

b) In Part 1 there are some changes to test room equipment specifications and the setup for testing to provide additional flexibility especially when testing multiple appliances in a single test room.

c) For more efficient analysis and to better characterise the key product characteristics under different operating conditions, the test data from many of the energy tests in Part 3 is now split into components (such as steady state operation and defrost and recovery). The approach to determination of energy consumption has been completely revised, with many internal checks now included to ensure that data complying with the requirements of the standard is as accurate as possible and of high quality.

d) Part 3 of the standard now provides a method to quantify each of the relevant energy components and approaches on how these can be combined to estimate energy under different conditions on the expectation that different regions will select components and weightings that are most applicable when setting both their local performance and energy efficiency criteria while using a single set of global test measurements.

e) For energy consumption measurements in Part 3, no thermal mass (test packages) is included in any compartment and compartment temperatures are based on the average of air temperature sensors (compared to the temperature in the warmest test package). There are also significant differences in the position of temperature sensors in unfrozen compartments.

f) The energy consumption test in Part 3 now has two specified ambient temperatures (16°C and 32°C).

g) While, in Part 2 (this part) test packages are still used for the storage test to confirm performance in different operating conditions, in Part 1 they have been standardised to one size (100 mm × 100 mm × 50 mm) to simply loading and reduce test variability. A clearance of at least 15 mm is now specified between test packages and the compartment liner.

h) A load processing energy efficiency test has been added in Part 3.

i) A tank-type ice making energy efficiency test has been added in Part 3.

j) A cooling capacity test has been added in Part 2 (this part).

k) A pull-down test has been added in Part 2 (this part).

l) Shelf area and storage volume measurement methods are no longer included. In Part 3 the volume measurement has been revised to be the total internal volume with only components necessary for the satisfactory operation of the refrigeration system considered as being in place.

m) Tests (both performance (Part 2 – this part) and energy (Part 3)) have been added for wine storage appliances.

The following print types are used in this international standard:

– requirements: in roman type;
– test variables: in *italic type*;
– notes: in small roman type.
– words in **bold** are defined in IEC 62552-1:2015.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62252 series, published under the general title *Household refrigerating appliances – characteristics and test methods*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment 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.

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INTRODUCTION

IEC 62552 is split into 3 parts as follows:

- Part 1: Scope, definitions, instrumentation, test room and set up of refrigerating products;
- Part 2: General performance requirements for **refrigerating appliances** and methods for testing them (this part);
- Part 3: **Energy consumption** and **volume** determination.

HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

Part 2: Performance requirements

1 Scope

This part of IEC 62552 specifies the essential characteristics of household and similar **refrigerating appliances** cooled by internal natural convection or forced air circulation, and ~~specifies~~ establishes test methods for checking these characteristics.

This part of IEC 62552 describes the methods for the determination of performance requirements. Although there is some commonality in the set-ups for different tests (and so it may be an advantage to apply them all to one sample), these are separate tests to evaluate specific characteristics of the sample being tested. This part of IEC 62552 does not specify a procedure to generalise the results from sample test results to a prediction of the characteristics of the whole population from which that sample was selected.

2 Normative references

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

IEC 62552-1:2015, *Household refrigerating appliances – Characteristics and test methods – Part 1: General requirements*

IEC 62552-3:2015, *Household refrigerating appliances – Characteristics and test methods – Part 3: Energy consumption and volume*

3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in IEC 62552-1:2015 apply.

4 Performance requirements and tests covered in this standard

4.1 General

This standard sets out tests to assess the performance of household and similar **refrigerating appliances**. While this standard does not require these tests to be performed, when they are performed, they shall be carried out as specified.

4.2 Storage test

The storage test is used to establish whether the **refrigerating appliance** is capable of maintaining suitable internal **storage temperatures** in a range of ambient conditions defined under the climate classes for which it is **rated**. See Clause 6.

4.3 Cooling capacity test

The **cooling capacity** test is used to measure the load processing capability of **fresh food compartment**s by determining the time to pull down a specified test load from ambient to a specified temperature. See Clause 7.

4.4 Freezing capacity test

The **freezing capacity** test is used to measure the load processing capability of **frozen compartment**s by determining the time to pull down a specified test load from ambient to a specified temperature. This test is required to establish whether a **frozen compartment** also qualifies for a **four-star** performance rating. See Clause 8.

4.5 Automatic ice-making capacity test

The **ice-making capacity** test is used to determine the quantity of new ice cubes that can be produced over a specified period of time. See Clause 9.

4.6 Other tests

Other tests that may not be required to be performed are found in the annexes.

These tests are

a) Pull-down test (Annex A): This test is used to measure the reserve refrigerating capacity of a **refrigerating appliance**.
b) Wine storage test (Annex B): This test is used to check compliance with the requirements of Part 2 at appropriate **ambient temperatures** for the various climate classes.
c) Temperature rise test (Annex C): This test is used to determine the time taken for the temperature to rise in the warmest test package from –18ºC to –9ºC after the power is disconnected. It is applicable to **refrigerating appliances** with one or more **three-star** or **four-star compartments**.
d) Water vapour condensation test (Annex D): This test is used to determine the extent of water condensation on the external surface of the **refrigerating appliance** under specified ambient conditions.

4.7 Test summary

Table 1 provides a summary of the tests to be performed.

Table 1 – Test summary

Clause / Annex and Test	Ambient		Pantry and cellar	Fresh food	Chill	Zero star	1 and 2 star	3 and 4 star	Temperature requirements after test has started
Clause 6 Storage	Various	Packages	No		~~Yes~~ Type b	No	~~Yes~~ 1 star: Type a Other: Type a or b		To hold initial values
		Initial temp	Mean		Instant	Mean	Max		
Clause 7 **Cooling capacity**	25 °C	Packages	No	Type b	No	No	No		For test load final only
		Initial temp	Table 2	+4 °C ± 0,5 K	Table 2	Maximum/ minimum	Average/ minimum		
Clause 8 **Freezing capacity**	25 °C	Packages	M-packages only Type b		~~Yes~~ Type b	No	~~Yes~~ Type a		Yes excursion and final
		Initial temp	Table 2		Not measured	Maximum/minimum			
Clause 9 Auto ice-making	25 °C	Packages	No						No
		Initial temp	As for Table 2			Maximum/minimum			
Annex A Pull-down	~~43 °C~~ Max	Packages	No						Final only
		Initial temp	~~43 °C~~ Maximum temperature according climate class rating						
Annex C Temp rise	25 °C	Packages	~~As for the storage test~~ No		Type b	No	Type a		For –18 °C **compartments** only
		Initial temp	Not specified					–18 °C	
Annex D Condensa-tion	25 °C for SN and N 32 °C for ST and T	Packages	No						To hold initial values
		Initial temp	≤ energy test temperatures as in Table 1 in IEC 62552-3:2015						

NOTE 1 For definitions of symbols, see 3.7 in IEC 62552-1:2015.

NOTE 2 In the event of any discrepancy between data in this table and the individual test procedures, the test procedures take precedence.

NOTE 3 Wine storage test parameters are specified in Annex B.