

# FINAL VERSION

# VERSION FINALE

---

**Household refrigerating appliances – Characteristics and test methods –  
Part 1: General requirements**

**Appareils de réfrigération à usage ménager – Caractéristiques et méthodes  
d'essai –  
Partie 1: Exigences générales**

## CONTENTS

FOREWORD .....	5
INTRODUCTION .....	8
1 Scope .....	9
2 Normative references .....	9
3 Terms, definitions and symbols .....	9
3.1 General terms and definitions .....	9
3.2 Terms and definitions related to refrigerating system .....	11
3.3 Compartments and sections .....	11
3.4 Physical aspects and dimensions .....	13
3.5 Terms and definitions relating to performance characteristics .....	14
3.6 Operating states as shown in Figure 1 .....	17
3.7 Symbols .....	18
4 Classifications .....	19
5 Marking .....	19
5.1 Rating information .....	19
5.2 Identification of frozen compartments .....	20
5.3 Load limit lines .....	21
6 Technical and commercial product information .....	21
6.1 General .....	21
6.2 Determination of linear dimensions .....	21
7 Instructions .....	22
Annex A (normative) Test room and instrumentation .....	24
A.1 Scope .....	24
A.2 Instruments, accuracy and precision of measurements .....	24
A.2.1 General .....	24
A.2.2 Electrical energy consumption .....	24
A.2.3 Humidity .....	24
A.2.4 Length .....	24
A.2.5 Mass .....	24
A.2.6 Temperature .....	25
A.2.7 Time .....	25
A.2.8 Voltage and frequency .....	25
A.3 General test conditions .....	25
A.3.1 General .....	25
A.3.2 Ambient temperatures .....	26
A.3.3 Electricity supply .....	27
A.3.4 Power supply other than electricity .....	28
A.3.5 Multiple power supply .....	28
A.3.6 Humidity .....	28
A.4 Test room configuration .....	28
A.4.1 General .....	28
A.4.2 Platform .....	28
A.4.3 Rear wall or partition .....	28
A.4.4 Side partitions .....	28
A.4.5 Sensor location .....	29

A.4.6	Test room general configuration .....	29
Annex B (normative)	Preparation of an appliance for testing and general measurement procedures .....	31
B.1	Scope .....	31
B.2	Preparation and set-up of appliance.....	31
B.2.1	General .....	31
B.2.2	Running in of new appliances .....	31
B.2.3	Installation of the appliance in the test room .....	31
B.2.4	Combined appliances .....	33
B.2.5	Setting up .....	33
B.2.6	Automatic ice makers .....	35
B.2.7	Pre-test condition .....	35
Annex C (normative)	Test packages .....	36
C.1	Dimensions and tolerances .....	36
C.2	Composition.....	36
C.3	M-packages .....	37
Annex D (normative)	Determination of compartment average air temperatures .....	38
D.1	Scope .....	38
D.2	Location of sensors.....	38
D.2.1	General .....	38
D.2.2	Unfrozen compartments.....	39
D.2.3	Frozen compartments .....	39
D.2.4	Equivalent positions and other requirements for all compartment types .....	39
D.2.5	Consideration of convenience features .....	42
D.3	Compartment average air temperatures determination .....	43
D.3.1	General .....	43
D.3.2	Determination of the average temperature of a sensor over a period .....	43
D.3.3	Determination of the temperature of a compartment .....	43
D.3.4	Calculation of temperature average .....	43
Annex E (normative)	Details of identification symbols .....	56
Annex F (informative)	Items that may be included in a test report .....	58
Annex G (normative)	Wine storage appliances.....	74
G.1	Scope .....	74
G.2	Terms, definitions and symbols.....	74
G.3	Requirements .....	74
G.3.1	Required temperature range .....	74
G.3.2	Maximum temperature fluctuation .....	74
G.3.3	Vibration .....	74
G.4	General test conditions .....	74
G.4.1	General .....	74
G.4.2	Low ambient temperature .....	75
G.4.3	Interior parts .....	75
G.5	Determination of volumes .....	75
G.5.1	Depth .....	75
G.5.2	Evaluation of bottle capacity for wine storage compartments .....	75
G.6	Measurement of storage temperature.....	76
G.7	Determining temperature fluctuation .....	79
G.8	Final test report .....	79

G.9	Marking and instructions .....	79
G.9.1	Technical and commercial product information .....	79
G.9.2	Instructions .....	79
	Bibliography .....	80
Figure 1	– Illustration of selected typical refrigerator operations .....	18
Figure 2	– Identification symbol for a four-star compartment .....	20
Figure 3	– Star identification symbols for frozen compartments (except four-star) .....	20
Figure 4	– Marking of load limit .....	21
Figure 5	– Linear dimensions (example: top view for upright type) .....	22
Figure A.1	– Verification of parameters to be kept constant .....	26
Figure A.2	– Partitions to restrict air circulation and ambient temperatures sensor positions .....	30
Figure B.1	– Examples of appliances with no spacers where rear clearance is specified .....	32
Figure D.1	– Air-temperature measuring points – unfrozen compartments with plate or concealed evaporators and effective height and width examples (all front views) .....	44
Figure D.2	– Air-temperature measuring points – unfrozen compartments .....	46
Figure D.3	– Air-temperature measuring points – small (sub-)compartments and low-height (sub-)compartments .....	47
Figure D.4	– Location of temperature sensors within upright frozen compartments without refrigerated shelves and with height equal to or less than 1 000 mm .....	48
Figure D.5	– Location of temperature sensors within upright frozen compartments without refrigerated shelves and with height greater than 1 000 mm .....	49
Figure D.6	– Location of temperature sensors within upright frozen compartments with refrigerated shelves and with height greater than 1 000 mm .....	50
Figure D.7	– Location of temperature sensors within chest freezers .....	53
Figure D.8	– Location of temperature sensors within drawers and bins .....	55
Figure D.9	– Location of temperature sensors when mirror image is applicable .....	55
Figure E.1	– Details of identification symbols for four-star compartments .....	56
Figure E.2	– Details of identification symbols for frozen compartments (except four-star) .....	57
Figure G.1	– Standard bottle for evaluation of bottle capacity .....	76
Figure G.2	– Temperature Measurement Points (packages) .....	78
Table 1	– Climate classes .....	19

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

#### Part 1: General requirements

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

**IEC 62552-1 edition 1.1 contains the first edition (2015-02) [documents 59M/61/FDIS and 59M/64/RVD] and its amendment 1 (2020-11) [documents 59M/126/FDIS and 59M/132/RVD].**

**This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.**

International Standard IEC 62552-1 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, -2 and -3 constitute a technical revision and includes 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 (this part) 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 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 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 simplify 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.
- k) A pull-down test has been added in Part 2.
- 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) 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 Clause 3.

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 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.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## INTRODUCTION

IEC 62552 is split into 3 parts as follows:

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

NOTE For the safety requirements applicable to household **refrigerating appliances**, see IEC 60335-2-24; for noise requirements applicable to household **refrigerators** and **freezers**, see IEC 60704-2-14.

# HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

## Part 1: General 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 establishes test methods for checking these characteristics.

NOTE Annex F lists the items that can be included in a test report.

For the purposes of declaration, the tests defined in this part of IEC 62552 are considered to be type tests to assess the fundamental design and operation of a **refrigerating appliance**. This part of IEC 62552 does not define requirements for production sampling or conformity assessment or certification.

This part of IEC 62552 does not define a regime for verification testing as this varies by region and country. When verification of the performance of a **refrigerating appliance** of a given type in relation to this standard is necessary, it is preferable, wherever practicable, that all the tests specified be applied to a single unit. The tests can also be made individually for the study of a particular characteristic.

### 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 62552-2:2015, *Household refrigerating appliances – Characteristics and test methods – Part 2: Performance requirements*  
IEC 62552-2:2015/AMD1:2020

IEC 62552-3:2015, *Household refrigerating appliances – Characteristics and test methods – Part 3: Energy consumption and volume*  
IEC 62552-3:2015/AMD1:2020

### 3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols apply.

#### 3.1 General terms and definitions

##### 3.1.1

##### **refrigerating appliance**

insulated cabinet with one or more **compartments** that are controlled at specific temperatures and are of suitable size and equipped for household use, cooled by natural convection or a forced convection system whereby the cooling is obtained by one or more energy-consuming means

Note 1 to entry: From the point of view of installation, there are various types of household **refrigerating appliances** (free-standing, portable, wall-mounted, built-in, etc.).