BS EN 62552-1:2020+A11:2024

BSI Standards Publication

Household refrigerating appliances — Characteristics and test methods

Part 1: General requirements

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Full document details: BS EN 62552-1:2020+A11:2024

National foreword

This British Standard is the UK implementation of EN 62552-1:2020+A11:2024. It is derived from IEC 62552-1:2015. It supersedes BS EN 62552-1:2020, which is withdrawn.

The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by ⟦A11⟩ ⟨A11⟧.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags ⟦C⟩ ⟨C⟧.

The UK participation in its preparation was entrusted to Technical Committee CPL/59, Performance of household electrical appliances.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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English Version

Household refrigerating appliances - Characteristics and test methods - Part 1: General requirements (IEC 62552-1:2015 , modified)

Appareils de réfrigération à usage ménager - Caractéristiques et méthodes d'essai - Partie 1: Exigences générales (IEC 62552-1:2015 , modifiée)

Haushaltskühlgeräte - Eigenschaften und Prüfverfahren - Teil 1: Allgemeine Anforderungen (IEC 62552-1:2015 , modifiziert)

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Comité Européen de Normalisation Electrotechnique
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European foreword

This document (EN 62552-1:2020) consists of the text of IEC 62552-1:2015 prepared by IEC/TC 59 "Performance of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-02-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-02-24

This standard in combination with standards EN 62552-2:2020 and EN 62552-3:2020 supersedes EN 62552:2013.

This standard shall be read in combination with standards EN 62552-2:2020 and EN 62552-3:2020.

EN 62552-1:2020 includes the following significant technical changes:

a) Chapter D.2. Location of sensor has been modified completely

b) Annex F Test report has been modified completely

c) New Annex ZA Final test report was added

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62552-1:2015 are prefixed “Z”.

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This document has been prepared under Standardization Request M/459 given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

Endorsement notice

The text of IEC 62552-1:2015 was approved by CENELEC as a European Standard with agreed common modifications.

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European foreword to Amendment A11

This document (EN 62552-1:2020/A11:2024) has been prepared by CLC/TC 59X, “Performance of household and similar electrical appliances”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2025-02-02
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2027-08-02

This document is read in conjunction with EN 62552-2:2020 and EN 62552-3:2020 and their amendments.

EN 62552-1:2020/A11:2024 includes the following significant technical modifications with respect to EN 62552-1:2020:

a) Annex B: requirements to test enclosures for built-in, built under and under counter appliances more specified.

b) Annex F: test report adjusted for freezing capacity test data.

c) Annex ZA: Final test report adjusted.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62552-1:2015 are prefixed “Z”.

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For the relationship with EU Legislation, see informative Annexes ZZA and ZZB, which are an integral part of this document.

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Annex ZA
(informative)

Test report layout

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No.:	Report - No.	Date:	dd/mm/yyyy	Type:	SomeFreezer SF1234
Test report - Household refrigeration appliance		**Testing institute:** Science Lab Ltd. Anywhere Outinavillage Country		**Manufacturer:**	Appliance ltd. Anywhere Outinavillage Country
verification test?	yes/no	**Approved by:**	Name Department	**Tested by:**	Name Department
EU regulation applied?	yes/no				
(EU) xxxx/xxxx (EU) xxxx/xxxx			Signature		Signature

Supplier name:	abc987
Model identifier:	xyz1234

Low-noise appliance:	yes/no	**Efficiency class[2]:**	A - G
Wine storage appliance:	yes/no	**Energy efficiency index EEI[2]:**	12.3
Other refrigerating appliance:	yes/no	**Standard annual energy consumption [kWh/a][2]:**	12.34
Design type:	built-in/freestanding	**Climate class:**	SN-T
Number of external doors:	1	**Min. temperature[1]: [°C]**	10
Winter setting:	yes/no	**Max. temperature[1]: [°C]**	43
Fast freezer facility:	yes/no	**Combi parameter[2]:**	1.23
Anti-condensation heater type:	manual on-off /ambient/other/none	**Load factor:**	1.2
		Door heat loss factor:	1.234

[1] Minimum/Maximum ambient temperature [°C] for which the refrigerating appliance is suitable.

[2] Based on declared energy consumption and/or volumes.

	H		W		D
Overall dimensions [mm]:	1234	x	1234	x	1234

All appliances	Decl.	Tested
Total volume [L]:	2345	2345.6

Wine coolers	Decl.	Tested
Bottle capacity [pcs]:	1234	1234
Temperature fluctuation test passed?		yes/no
Relative humidity test passed?		yes/no

Compart-ments	Type	Defrosting type [auto=A, manual=M]	Star rating	Declared volume [L]	Tested volume [L]	Volume confirmed?	Recommended temperature setting [°C]	Storage test passed?	
								High temp.	Low temp.
1	Pantry	A/M/n.a.	n.a.	123.4	123.4	yes/no	+14 ≤ +20	yes/no	yes/no
2	Wine storage	A/M/n.a.	n.a.	123.4	123.4	yes/no	+5 ≤ +20	yes/no	yes/no
3	Cellar	A/M/n.a.	n.a.	123.4	123.4	yes/no	+2 ≤ +14	yes/no	yes/no
4	Fresh food	A/M/n.a.	n.a.	123.4	123.4	yes/no	0 ≤ +4	yes/no	yes/no
5	Chill	A/M/n.a.	n.a.	123.4	123.4	yes/no	-3 ≤ +3	yes/no	yes/no
6	0-star/ice-making	A/M/n.a.	n.a.	123.4	123.4	yes/no	≤ 0	yes/no	yes/no
7	1-star	A/M/n.a.	1	123.4	123.4	yes/no	≤ -6	yes/no	yes/no
8	2-star	A/M/n.a.	2	123.4	123.4	yes/no	≤ -12	yes/no	yes/no
9	3-star	A/M/n.a.	3	123.4	123.4	yes/no	≤ -18	yes/no	yes/no
10	Freezer (4-star)	A/M/n.a.	4	123.4	123.4	yes/no	≤ -18	yes/no	yes/no
11	2-star section	A/M/n.a.	2	123.4	123.4	yes/no	≤ -12	yes/no	yes/no
12	Variable temperature compartment	A/M/n.a.	n.a.	124.4	124.4	yes/no	-	yes/no	yes/no

Energy consumption 16°C ambient temperature	Tested
Incremental energy for defrost and recovery Δ E_{df} [Wh]:	12.3
Defrost and recovery interval Δ t_{df} [h]:	36.0
Energy consumption E_{16} [kWh/d]:	0.123

Energy consumption 32°C ambient temperature	Tested
Incremental energy for defrost and recovery Δ E_{df} [Wh]:	12.3
Defrost and recovery interval Δ t_{df} [h]:	18.0
Energy consumption E_{32} [kWh/d]:	1.234

Energy consumption 25°C ambient temperature (low noise appliances)	Tested
Energy consumption E_{25} [kWh/d]:	1.234

Other performance characteristics	Declared	Tested	Passed?
Temperature rise time [h]:	12	12.34	yes/no/n.a.
Freezing capacity [kg/24h]:	2.0	2.0	yes/no/n.a.
Noise emission [dB(A)]:	12	12.3	yes/no
Noise emission class:	A	A/B/C/D	yes/no
Ice-making capacity [kg/24h]:	5.0	5.0	yes/no/n.a.
Chill verification test:		yes/no/n.a.	yes/no/n.a.

Circumvention	Case
Circumvention measures suspected?	yes/no
Tests carried out to evaluate possible circumvention devices?	yes/no

Auxiliary energy consumption [kWh/a]:	12.345

Tested ☐ Calculated ☐

	Declared	Tested	Passed?
Annual energy consumption AE [kWh/a]:	123	123.45	yes/no

Comments

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Annex ZB
(normative)

Normative references to international publications with their corresponding European publications

〈A11〉 The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 Z1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE Z2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 62552-2	2015	Household refrigerating appliances - Characteristics and test methods – Part 2: Performance requirements	EN 62552-2 + A11	2020 2024
IEC 62552-3	2015	Household refrigerating appliances - Characteristics and test methods – Part 3: Energy consumption and volume	EN 62552-3 + A11	2020 2024

〈A11〉

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Annex ZZA
(informative)

Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 2019/2019 aimed to be covered

〈A11〉 This European standard has been prepared under a Commission's standardization request 'M/586' / 'C (2022) 6047 final' to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) No 2019/2019 of 1 October 2019 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for (EC) No 643/2009 [OJEU L315/187 of 05.12.2019].

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA Regulations.

Table ZZA.1 — Correspondence between this European Standard and Commission Regulation (EU) No 2019/2019 of 1 October 2019 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements (EC) No 643/2009 [OJEU L315/187 of 05.12.2019] and Commission's standardization request 'M/586' / 'C(2022) 6047 final'

Ecodesign requirements of Regulation No 2019/2019 [OJEU L315/187 of 05.12.2019]	**Clause(s) / sub-clause(s) of this EN**	**Remarks / Notes**
Performance of wine storage with regards to temperature fluctuation, humidity range and volume measurement Annex III, part 3, Table 3: note (2) and (6) Annex III, part 4 (a)	Annex G 5 "Determination of volumes" Annex G 7 Determining temperature fluctuation"	
Freezing capacity Annex III, part 1 (h)	Annex B "Preparation of an appliance for testing and general measurement procedures" Annex C "Test packages"	
Storage test at climatic class claimed Annex III, part 1 (i)	Annex B "Preparation of an appliance for testing and general measurement procedures" Annex C "Test packages"	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

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Annex ZZB
(informative)

Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 2019/2016 aimed to be covered

〚A11〛 This European standard has been prepared under a Commission's standardization request 'M/586' / 'C (2022) 6047 final' to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) 2019/2016 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances [OJEU L315/102 of 05.12.2019].

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding energy labelling requirements of that Regulation and associated EFTA Regulations.

Table ZZB.1 — Correspondence between this European Standard and Commission Delegated Regulation (EU) 2019/2016 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances [OJEU L315/102 of 05.12.2019] and Commission's standardization request 'M/586' / 'C(2022) 6047 final'

Energy labelling requirements of Regulation 2019/2016 [OJEU L315/102 of 05.12.2019]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Performance of wine storage with regards to temperature fluctuation, humidity range and volume measurement Annex IV, part 3, Table 3: note (2) and (6), Annex IV, part 4 (a)	Annex G 5 "Determination of volumes" Annex G 7 "Determining temperature fluctuation"	
Freezing capacity Annex IV, part 1 (h), (i)	Annex B "Preparation of an appliance for testing and general measurement procedures" Annex C "Test packages"	
Temperature rise time Annex VI, Table 7	Annex B "Preparation of an appliance for testing and general measurement procedures" Annex C "Test packages"	
Storage test at climatic class claimed. Annex III, part 1 (j)	Annex B "Preparation of an appliance for testing and general measurement procedures" Annex C "Test packages"	

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HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

Part 1: General requirements

FOREWORD

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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 cancel and replace the first edition of IEC 62552 published in 2007. 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

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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 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.

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.

The text of this standard is based on the following documents:

FDIS	Report on voting
59M/61/FDIS	59M/64/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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.

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The committee has decided that the contents of this publication 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 (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.

〚A11〉 This document was developed in relationship with Regulation (EU) 2019/2016 of 11.03.2019 and its amendments on energy labelling and Regulation (EU) 2019/2019 of 01.10.2019 and its amendments on ecodesign for refrigerating appliances. 〈A11〛

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HOUSEHOLD REFRIGERATING APPLIANCES – CHARACTERISTICS AND TEST METHODS –

Part 1: General requirements

1 Scope

〖C〗 This part of EN 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. 〖C〗

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 62552-3:2015, *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 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.).

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3.1.2
refrigerator
refrigerating appliance intended for the storage of **foodstuff**, with at least one **fresh food compartment**

3.1.3
refrigerator-freezer
refrigerating appliance having at least one **fresh food compartment** and at least one **freezer compartment**

3.1.4
frost-free refrigerating appliance
refrigerating appliance in which all **compartments** are automatically defrosted with automatic disposal of the defrosted water and at least one **compartment** is cooled by a **frost-free** system

3.1.5
freezer
refrigerating appliance with only **frozen compartments**, at least one of which is a **freezer compartment**

3.1.6
wine storage appliance
refrigerating appliance that has no **compartment** other than one or more **wine storage compartment**(s)

Note 1 to entry: An appliance containing any **compartments** which do not fulfil all requirements as specified for **wine storage compartments** under Annex G cannot be categorised as a **wine storage appliance**.

3.1.7
built-in appliance
refrigerating appliance intended to be used whilst fastened in an enclosure or secured in a prepared recess in a wall or similar location

3.1.8
foodstuff
food and beverages intended for consumption

3.1.9
rated
value declared by the manufacturer (e.g. **volume, energy consumption**, usage)

3.1.10
normal use
operation when the **refrigerating appliance** is subjected to a range of different conditions that could occur during use including operation in a range of:

– indoor temperatures (including those defined in the Storage Test, see Clause 6 of IEC 62552-2:2015),
– different humidity levels and
– user-related actions, such as door openings (which may be regular, infrequent or a mixture thereof) and the addition and removal of **foodstuff** or other stored items

〔C〉 **3.1.Z1**
low noise refrigerating appliance
refrigerating appliance without vapour compression and with airborne acoustical noise emission lower than A-weighted sound power of 27 dB referred to 1 pW (dB(A) re 1pW) 〈C〉

〔A11〉 **3.1.Z12**
mobile refrigerating appliance
refrigerating appliance that can be used where there is no access to the mains electricity grid and that uses extra low-voltage electricity (< 120V DC) or fuel or both as the energy source for the refrigeration functionality, including a refrigerating appliance that, in addition to extra low voltage electricity or fuel, or both, can be electric mains operated 〈A11〉

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3.2 Terms and definitions related to refrigerating system

3.2.1
refrigerant
fluid used for heat transfer in a refrigerating system, which absorbs heat at a low temperature and at a low pressure of the fluid and rejects heat at a higher temperature and at a higher pressure of the fluid, usually involving changes of phase of the fluid

3.2.2
condenser
heat exchanger from which heat in the **refrigerant** is rejected to an external cooling medium (usually the air surrounding the appliance)

3.2.3
evaporator
heat exchanger which absorbs heat from the **compartment** to be refrigerated and transfers this to the **refrigerant**

3.3 Compartments and sections

3.3.1
compartment
enclosed space within a **refrigerating appliance**, which is directly accessible through one or more external doors, which may itself be divided into **sub-compartments**

Note 1 to entry: The requirements for the following **compartment** types are specified in Table 2 of IEC 62552-2:2015 and Table 1 of IEC 62552-3:2015

Note 2 to entry: Throughout this standard, unless specified otherwise, "**compartment**" shall be taken to mean **compartment** and/or **sub-compartment** as appropriate for the context.

〚C〛 Note Z1 to entry: A non-enclosed space in the **refrigerating appliance** having one or more external doors, which are only used to access this space, is considered to be a **compartment**. 〚C〛

3.3.2
sub-compartment
permanent enclosed space within a **compartment** which has a different operating temperature range from the **compartment** within which it is located

3.3.3
convenience feature
enclosure, or a container (either fixed or removable by the user), in which suitable storage conditions are provided for designated types of **foodstuff**

Note 1 to entry: These conditions may be different from those of the **compartment** in which it is located.

3.3.4
variable temperature compartment
compartment intended for use as two (or more) alternative **compartment** types (e.g. a **compartment** that can be either a **fresh food compartment** or **freezer compartment**) and which is capable of being set by a user to continuously maintain the operating temperature range applicable for each **compartment** type claimed

Note 1 to entry: A **compartment** intended for use as a single type but that can also meet additional types (e.g. a **chill compartment** that may also fulfil **zero-star** requirements) is not a **variable temperature compartment.**

〚C〛 Note Z1 to entry: See B.2.5.2 for requirements regarding energy consumption declarations for products with variable temperature compartments. 〚C〛

3.3.5
freezer compartment
compartment that meets **three-star** or **four-star** requirements

〚C〛 Note 1 to entry: **Two-star sections** and/or **sub-compartments** are permitted within the compartment.

Note 2 to entry: A compartment that can meet the three star definition is deemed to be a **three star compartment** and presence of **two-star sections** and/or **sub-compartments** within a compartment does not prevent that compartment from meeting the definition of a **three star compartment**. 〚C〛

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3.3.6
fresh food compartment
compartment for the storage and preservation of unfrozen **foodstuff**

3.3.7
cellar compartment
compartment for the storage of **foodstuff** at a temperature that is warmer than that of a **fresh food compartment**

3.3.8
pantry compartment
compartment for the storage of **foodstuff** at a temperature that is warmer than that of a **cellar compartment**

3.3.9
chill compartment
compartment for the storage of highly perishable **foodstuff**

3.3.10
ice-making compartment
compartment specifically for the making and storage of ice

Note 1 to entry: an **ice-making compartment** is classified as a **zero-star compartment** or a **frozen compartment**.

3.3.11
ice mould
form in an automated icemaker which is automatically filled with water and from which the ice cubes are automatically ejected

3.3.12
ice cube tray
removable tray which is manually filled with water and from which ice cubes are manually ejected

Note 1 to entry: **Ice cube trays** with water are used as load in order to determine **load processing efficiency**. See Annex G of IEC 62552-3:2015.

3.3.13
zero-star compartment
compartment in which the temperature is not warmer than 0 °C that can be used for the making and storage of ice but is not suitable for the preservation of highly perishable **foodstuff**

3.3.14
wine storage compartment
compartment specifically for the storage and maturation of wine

Note 1 to entry: Temperature requirements for **wine storage compartments** are specified in Annex G.

3.3.15
unfrozen compartment
any of the following **compartment** types: **zero-star, chill, fresh food, cellar, wine storage** or **pantry**

Note 1 to entry: although **ice-making compartments** and **zero star compartments** operate below zero, they are configured as **unfrozen compartments** for energy and performance tests in this standard.

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3.3.16
frozen compartment
any of the following **compartment** types: **one-star, two-star, three-star, four-star**

Note 1 to entry: **frozen compartments** are classified according to temperature, see 3.3.16.1 to 3.3.16.4.

3.3.16.1
one-star
compartment where the **storage temperature** is not warmer than –6 °C

3.3.16.2
two-star
compartment where the **storage temperature** is not warmer than –12 °C

3.3.16.3
three-star
compartment where the **storage temperature** is not warmer than –18 °C

〚C〛 Note Z1 to entry: **Two-star sections** and/or **sub-compartments** are permitted within the compartment.

Note Z2 to entry: A compartment that can meet the three star definition is deemed to be a **three star compartment** and presence of **two-star sections** and/or **sub-compartments** within a compartment does not prevent that compartment from meeting the definition of a **three star compartment**. 〚C〛

3.3.16.4
four-star
compartment where the **storage temperature** meets **three-star** conditions and where the minimum **freezing capacity** meets the requirements of Clause 8 of IEC 62552-2:2015

〚C〛 Note 1 to entry: **Two-star sections** and/or **sub-compartments** are permitted within the compartment.

Note Z2 to entry: A compartment that can meet the four star definition is deemed to be a **four star compartment** and presence of **two-star sections** and/or **sub-compartments** within a compartment does not prevent that compartment from meeting the definition of a **four star compartment**. 〚C〛

3.3.17
two-star section
part of a **three-star** or **four-star compartment**, which is not self-contained (i.e., does not have its own individual access door or lid) and which meets **two-star** requirements

Note 1 to entry: Any **two-star** section in the **compartment** shall not exceed 20 % of the total **compartment volume**.

3.3.18
vegetable drawer or crisper
convenience feature provided primarily to retard dehydration of fruits and vegetables

Note 1 to entry: A **vegetable drawer** is usually considered as a removable **convenience feature** but is normally left in situ for testing purposes.

3.4 Physical aspects and dimensions

3.4.1
top-opening type
refrigerating appliance in which the **compartment**(s) are accessible from the top (usually via a lid)

3.4.2
upright type
refrigerating appliance in which the **compartment**(s) are accessible from the front

3.4.3
overall dimensions
space taken up by the **refrigerating appliance** (height, width and depth) with doors or lids closed

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3.4.4
space required in use
space taken up by the **refrigerating appliance** (height, width and depth) necessary for **normal use** with doors or lids closed, including space necessary for air circulation and any handles, as shown in Figure 5

3.4.5
overall space required in use
total space taken up by the **refrigerating appliance** (height, width and depth) necessary for **normal use** with doors or lids open, as shown in Figure 5

3.4.6
volume
space within the inside liner of the **refrigerating appliance**, or a **compartment** or **sub compartment** as determined in IEC 62552-3

3.4.7
shelf
horizontal surface on which **foodstuff** can be placed

Note 1 to entry: A **shelf** can be formed by one component or by components fitted side by side, which can be fixed or removable.

3.4.8
load limit
surface enveloping a storage space and intended for the storage of **foodstuff** or other items

Note 1 to entry: A **load limit** may be a natural obvious feature or a marked line.

3.4.9
storage plan
arrangement of test packages within a **refrigerating appliance** when testing specific aspects of performance in accordance with this standard

〚C〛 **3.4.Z1**
h-line
vertical line through a **compartment** used to measure the effective height and to define the height positions of sensors in a **compartment** 〚C〛

3.5 Terms and definitions relating to performance characteristics

3.5.1
energy consumption
energy used by a **refrigerating appliance** over a specified period of time or for a specified operation as determined in accordance with IEC 62552-3 stated in kWh (kilowatt hour)

3.5.2
average power consumption
average rate of **energy consumption** of a **refrigerating appliance** for a specific test condition or operation as determined in accordance with IEC 62552-3 measured in watt (W)

3.5.3
storage temperature
temperature which the **refrigerating appliance** is capable of maintaining in accordance with 6.5 of IEC 62552-2:2015

3.5.4
target temperature
reference **compartment** temperature which is used for determining energy and **average power consumption** attributes in IEC 62552-3

Note 1 to entry: **Target temperatures** are air temperatures. See Annex D.

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3.5.5 Defrosting

3.5.5.1
automatic defrost
defrosting where no action is necessary by the user to initiate the removal of frost accumulation at all **temperature-control settings** or to restore normal operation, and the disposal of the defrost water is automatic

〚C〛 Note Z1 to entry: **Automatic defrost** may be achieved by active heating of the evaporator (typically using a resistive heater), or by other means, such as e.g. stopping the cooling function of the evaporator without active heating, reverse cycle defrost or hot gas bypass defrosting. 〚C〛

3.5.5.2
manual defrost
defrost that is not an **automatic defrost**

3.5.5.3
cyclic defrost
automatic defrost system where the refrigerated surfaces which cool a **compartment** (usually an **unfrozen compartment)** in an appliance are automatically defrosted and defrosting occurs during each cycle of the refrigeration system

Note 1 to entry: **Cyclic defrost** systems do not have a **defrost control cycle.**

3.5.5.4
variable defrost
automatic defrost system designed to minimise **energy consumption** which adjusts the time intervals between successive defrosts under **normal use** to better match the actual frost load on the **evaporator** by the assessment of an operating condition (or conditions) other than, or in addition to, elapsed time or compressor run time

Note 1 to entry: Demand defrost, (directly measuring the frost on the **evaporator** and defrosting accordingly) is a form of **variable defrost.**

3.5.6
stable operating conditions
conditions in which a **refrigerating appliance** mean temperatures and **energy consumption** comply with the relevant stability requirements as defined in IEC 62552-2 or IEC 62552-3 as applicable

3.5.7
steady state
stable operating conditions that meet the criteria as specified in Annex B of IEC 62552-3:2015

3.5.8
ambient temperature
measured temperature in the space surrounding the **refrigerating appliance** under test

Note 1 to entry: The **ambient temperature** for each test type is measured as specified in Annex A of this Part and its value is as specified in IEC 62552-2:2015 and IEC 62552-3:2015 of this standard as applicable for the particular test.

3.5.9
control event
change in operating conditions

Note 1 to entry: **Control events** include but are not limited to—

a) starts, stops or speed changes of compressors;

b) changes of baffle position, fan operation, or other modulating control or device;

c) changes in operation of the **refrigerant** circuit;

d) defrost heater on and off;

e) icemaker operation.

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3.5.10
frost-free
automatic defrost system to prevent the permanent formation of frost on a remote **evaporator** or **evaporators**

3.5.11
temperature control
device that is intended to automatically regulate the temperature within one or more **compartments**

Note 1 to entry: Unless otherwise stated, a two position (e.g. open or closed) control is not included within the meaning of a **temperature control**.

3.5.12
user-adjustable temperature control
temperature control intended for adjustment by the user to vary the temperature within one or more **compartments** within a **refrigerating appliance**

3.5.13
temperature control setting
setting of a **user-adjustable temperature control** selected for the measurement of energy or performance in accordance with this standard

3.5.14
cooling time
time taken for a specified load in a **fresh food compartment** to be cooled as defined in Clause 7 of IEC 62552-2:2015

3.5.15
cooling capacity
rate at which a specified load in a **fresh food compartment** can be cooled as defined in Clause 7 of IEC 62552-2:2015

3.5.16
freezing time
time to freeze in a **freezer** or **freezer compartment** a set amount of load as defined in Clause 8 of IEC 62552-2:2015

3.5.17
freezing capacity
rate of heat extraction by the refrigeration system from a load in a **freezer** or **freezer compartment** as defined in Clause 8 of IEC 62552-2:2015

3.5.18
ice-making capacity
quantity of ice the **refrigerating appliance** is capable of producing in an automatic icemaker in accordance with Clause 9 of IEC 62552-2:2015

3.5.19
temperature rise time
time taken, after the operation of the refrigerated system has been interrupted, for the temperature to increase a defined amount when tested as specified in Annex C of IEC 62552-2:2015

3.5.20
ballast load
combination of test and M-packages already at **storage temperature** and in the **freezer** or **freezer compartment** when the **light load** is added during the **freezing capacity** test

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3.5.21
light load
combination of test and M-packages at **ambient temperature** that are loaded into a **freezer compartment** during the **freezing capacity** test

3.5.22
〚C〛 load processing efficiency test 〚C〛
test in which a specified water load is introduced to the appliance to determine how much extra energy is needed to cool it down (and, in **frozen compartments**, freeze it)

Note 1 to entry: See Annex G of IEC 62552-3:2015.

3.5.23
processing load
energy equivalent of a user **processing load** in Wh/day

3.5.24
load processing efficiency
ratio of additional energy used by the **refrigerating appliance** to cool a specified **processing load** to the calculated heat energy removed from that **processing load**

〚C〛 *Text deleted* 〚C〛

3.6 Operating states as shown in Figure 1

3.6.1
temperature control cycle
definite repetitive swings in temperature caused by operation of a **temperature control** device (on/off or otherwise)

Note 1 to entry: The period of a **temperature control cycle** is the time between a **control event** and its repetition on the next cycle. Where the **control events** cannot be discerned, the period of a **temperature control cycle** is the time between two successive temperature warmest points or two successive temperature coldest points.

3.6.2
defrost control cycle
period commencing at the end of **stable operating conditions** prior to the initiation of an **automatic defrost** and terminating at a like point prior to the next **automatic defrost**

Note 1 to entry: The commencement and finish points of the **defrost control cycle** prior to **automatic defrosting** shall be:

a) for a refrigerating system with on/off cycles, the period commencing at the end of the last regular **temperature control cycle** (for example the end of last off period);

b) for a refrigerating system without on/off cycles but with regular temperature cycles, at the last power/speed/cooling change that relates to a regular temperature maximum; and

c) for a refrigerating system without on/off cycles and without regular temperature cycles, at the end of stable temperature operation.

Note 2 to entry: **Cyclic defrost** systems do not have a **defrost control cycle.**

3.6.3
defrosting operation
period from the initiation of a **defrost control cycle** until the initiation of the refrigeration system cooling after defrosting

3.6.4
defrost and recovery period
period from the initiation of a **defrost control cycle** until **stable operating conditions** are established

Note 1 to entry: For products that do not reach **stable operating conditions** (for example that have a temperature that is continually decreasing after a **defrosting operation**), the **defrost and recovery period** could be equal to the **defrost control cycle**.

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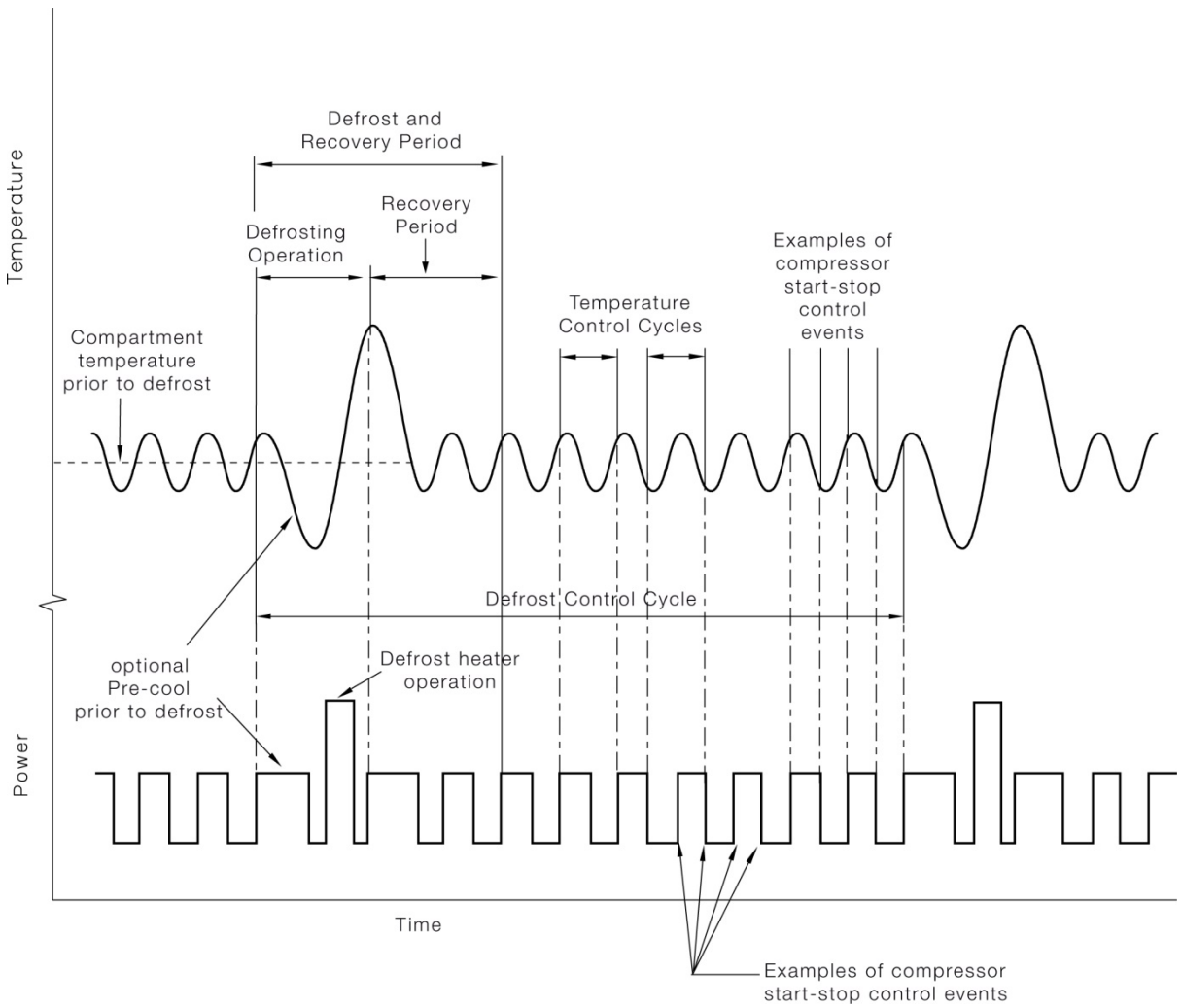
3.6.5
recovery period
period from the end of the **defrosting operation** until the end of the **defrost and recovery period**

〈C〉



NOTE Components of refrigerator operation depicted in this figure are illustrative only and are intended to be representative of common products. Not all products will exhibit all features and some products may operate in a different manner. Written definitions have precedence over depictions in this figure.

Figure 1 — Illustration of selected typical refrigerator operations 〈C〉

3.7 Symbols

TMP temperature measurement point

T temperature

t time

i subscript representing a certain sensor location

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