EESTI STANDARD EVS-EN 62552-3:2020

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Household refrigerating appliances - Characteristics and test methods - Part 3: Energy consumption and volume

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA / NATIONAL FOREWORD

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
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English Version

Household refrigerating appliances - Characteristics and test methods - Part 3: Energy consumption and volume (IEC 62552-3:2015 , modified)

Appareils de réfrigération à usage ménager - Caractéristiques et méthodes d'essai - Partie 3: Consommation d'énergie et volume (IEC 62552-3:2015 , modifiée)

Haushaltskühlgeräte - Eigenschaften und Prüfverfahren - Teil 3: Energieverbrauch und Rauminhalt (IEC 62552-3:2015 , modifiziert)

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European Committee for Electrotechnical Standardization
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Contents

European foreword

This document (EN 62552-3:2020) consists of the text of IEC 62552-3:2015 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• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2023-02-24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 62552-1:2020 and EN 62552-2:2020 will supersede EN 62552:2013.

This standard shall be read in combination with standards EN 62552-1:2020 and EN 62552-2:2020.

EN 62552-3:2020 includes the following significant technical changes:

a) definition of the “regional function”, i.e. calculation formula for annual energy consumption for Europe;

b) some clauses have been completely modified, i.e. D.3, F.1 and H.2.2;

c) adding of H.Z1 and Figures H.Z1, H.Z2, H.Z3, H.Z4 and H.Z5.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62552-3:2015 are prefixed “Z”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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 62552-3:2015 was approved by CENELEC as a European Standard with agreed common modifications.

1 Modification to the Introduction

Add the following paragraph:

"This standard was developed in relationship with Regulations (EU) 2019/2016 of 11.3.2019 on energy labelling and (EU) 2019/2019 of 1.10.2019 on ecodesign for refrigerating appliances."

2 Modification to Clause 3, "Terms, definitions and symbols"

Add the following definition:

"3.1.Z1
low noise refrigerator
refrigerating appliance without vapour compression and with airborne acoustical noise emission lower than 27 A-weighted decibel referred to 1 pico Watt [dB(A) re 1 pW]"

3 Modification to Clause 5, "Target temperatures for energy determination"

Add the following subclause:

"5.Z1 Controllability of temperatures in a compartment

The standard does generally not include tests for the controllability of temperatures in a compartment (i.e. how well the temperature is kept constant during changing environmental conditions without the user having to adjust temperature control settings). The exception is the chill compartment for which a chill compartment temperature control test has been included in Annex ZA."

4 Modifications to Clause 6, "Determination of energy consumption"

In 6.8.5, "Total energy consumption", delete the sentence "E_{aux} expressed as an integrated energy value over a year".

Replace the seventh and eighth paragraph and Formula (4) with:

"The total annual energy consumption of a refrigerating appliance E_{total} (except for **low noise refrigerating appliances**) can be given by:

$$E_{total} = f\left\{E_{daily16°C}, E_{daily32°C}\right\} + E_{aux} \quad (4)$$

where

f	is a regional function to give the annual energy based on daily energy at 16 °C and 32 °C. In this standard this function is defined as: $f\{E_{daily16°C}, E_{daily32°C}\} = (Day_{16°C} \times E_{Daily16°C}) + (Day_{32°C} \times E_{Daily32°C})$ *where* $Day_{16°C} = Day_{32°C}$ = 365/2 days = 182,5 days; see Annex I for examples by taking into account $D_{16°C} = D_{32°C}$ = 365/2 d = 182,5 days;
E_{aux}	is the annual energy from ambient controlled anti-condensation heater(s) as described in Annex F. See I.5 for an example how to calculate this auxiliary.

The E_{total} shall be calculated in according the following equation:

$$E_{total} = 182{,}5 \times E_{daily16°C} + 182{,}5 \times E_{daily32°C} + E_{aux}$$

For **low noise refrigerating appliances**, the energy consumption shall be determined as provided for in Formula 4, but at an ambient temperature of 25 °C instead of at 16 °C and 32 °C.

E_{daily}, expressed in kWh/24h and rounded to three decimal places for the calculation of the AE is then as follows:

$E_{daily} = E_{25}$

where E_{25} is E_T at an ambient temperature of 25 °C and derived by interpolation of the energy tests at the target temperatures listed in Table 1."

5 Modification to Annex A, "Set up for Energy testing"

Replace the first paragraph of A.2.6.5, "Position of the temperature sensor in automatic ice-makers" with:

"An automatic ice-maker bin shall have a single temperature sensor located in the position specified as follows for all energy tests:"

6 Modifications to Annex B, "Determination of steady state power and temperature"

In B.4.3, "Case SS2 calculation of values", replace Formula (13) with:

"$$T_{SS2-i} = (T_{av-endX-endY-i}) - \left[\frac{\Delta Th_{dfj-i}}{(t_{end-Y} - t_{end-X})}\right] \qquad (13)"$$

In B.4.3, "Case SS2 calculation of values", replace item ΔTh_{dfj-i} under Formula (13) with:

"

ΔTh_{dfj-i} is the accumulated temperature difference over time in each **compartment** i in Kh as determined in accordance with C.3.3 for the **defrost and recovery period** j commencing at the end of Period X"

In B.4.3, "Case SS2 calculation of values", replace Formula (14) with:

"$$CRt_{SS2} = \frac{Rt_{end-Y} - Rt_{end-X} - \Delta t_{drj}}{(t_{end-Y} - t_{end-X})} \qquad (14)"$$

In B.4.3, "Case SS2 calculation of values", replace item Δt_{dr} under Formula (14) with:

"

Δt_{drj} is the additional compressor run time in h as determined in accordance with C.3.3 for the **defrost and recovery period** j commencing at the end of period X"

7 Modifications to Annex C, "Defrost and recovery energy and temperature change"

In C.3.3, "Case DF1 calculation of values" add the following after the NOTE:

"During a **load processing efficiency** test, it is possible that one or more defrosts occur for which a correction shall be made. This correction is based on splitting the defrost and recovery energy in a fixed part and the energy used by the defrost heater:

Fixed defrost adder is:

$$\Delta E_{df-adder,j} = \Delta E_{df,j} - E_{df-heater,j} \qquad (19a)$$

where:

$E_{df\text{-}adder,j}$ is the energy used by the defrost heater during the **defrost and recovery period** j in Wh."

In C.4, "Number of valid defrost and recovery periods", add the following note at the end:

"NOTE Z1 The defrost heater energy $\Delta E_{df\text{-}adder,j}$ and incremental defrost and recovery energy $\Delta E_{df,i}$ for new appliances and appliances that have not been operated for some time could be initially low until the defrost heater energy stabilizes."

In C.5, "Calculation of representative defrost energy and temperature", replace Formula 22 with:

$$\text{"}\quad \Delta E_{df} = F_{df}\,\frac{\sum_{j=1}^{m} \Delta E_{df,j}}{m} \qquad (22)\text{"}$$

In C.5, "Calculation of representative defrost energy and temperature", add the following text below the line $\Delta E_{df,j}$:

"F_{df} is a regional scaling factor which can be used to compensate for frost load and usage factor which impacts the defrosts intervals. The value for F_{df} is set to 1,0."

In C.5, "Calculation of representative defrost energy and temperature", add the following text above Formula (23):

"For correcting a **load processing efficiency** tests where one or more defrosts occurs, a representative value for the fixed defrost adder is defined:"

In C.5, "Calculation of representative defrost energy and temperature", replace Formula 23 with:

$$\text{"}\quad \Delta E_{df-adder} = \frac{\sum_{j=1}^{m} \Delta E_{df-adder,j}}{m} \qquad (23)\text{"}$$

8 Modifications to Annex D, “Defrost interval”

In D.2, "Elapsed time defrost controllers", replace Note 2 with:

"NOTE 2 The same timers could be used as compressor run time controllers or as elapsed time controllers, depending on how they are configured in the refrigerating appliance."

Replace the entire subclause of D.3, "Compressor run time defrost controllers" with:

"For these controllers, the **defrost interval** is defined by the compressor run time (or on time in hours) (or in some cases the compressor run time plus the maximum time allocated for defrost heater operation). These controllers are only applicable to single speed compressors. The **defrost interval** is therefore approximately inversely proportional to the total heat load on the refrigeration system (**ambient temperature** and user loads plus any internal heat loads). The most common defrost run time controllers range from 6 h to 12 h of compressor run time. Typically this would result in **defrost intervals** of the order of 12 h to 30 h (elapsed time) at elevated **ambient temperatures** and somewhat longer **defrost intervals** at lower **ambient temperatures**.

NOTE 1 The same timers could be used as compressor run time controllers or as elapsed time controllers, depending on how they are configured in the **refrigerating appliance**.

If the run time controller is not accessible (or where it is not clear whether the controller is a run time controller) or where the laboratory is not able to directly measure the controller operation and does not know its run time, the value for the proxy run time shall be measured by testing as set out below. Any routine energy tests or other tests may be used for this purpose.

Each measurement shall be undertaken over a whole **defrost control cycle** and tests shall be undertaken in at least two different **ambient temperatures** in order to verify that it is a run time controller and to estimate the value of t_{prt}. The period selected shall comply with the following requirements:

— The first defrost shall qualify as a valid defrost as specified in C.3;

— the test period shall include at least part of the subsequent **defrost and recovery period** that is initiated automatically without any intervention (defrost heater on).

The estimated proxy run time of the compressor run time defrost controller for a given set of test data that complies with these requirements is given by:

$$t_{prt,j} = t_{crt,j} + t_{dh,j} \tag{25}$$

where

$t_{prt,j}$ is the estimated proxy run time of the compressor run time defrost controller for the test period starting with **defrost and recovery period** j in h;

$t_{crt,j}$ is the measured compressor run time in h from the initiation of defrost heater operation for **defrost and recovery period** j to the initiation of defrost heater operation for the subsequent **defrost and recovery period** j + 1;

$t_{dh,j}$ is the time from the start of the defrost heater on until the compressor restarts in h during **defrost and recovery period** j where the timer advances during the heater operation; otherwise a value of zero if the timer does not advance during the heater operation.

A common configuration is that the defrost heater is allocated a fixed maximum time of operation in the timer defrost controller (for example 20 min). The actual heater on time will vary depending on the frost load for the specific defrost. So the time between the heater off and the compressor on may vary, but the total time from heater on to compressor on should be constant in this configuration. Where the laboratory has any doubt about the appliance configuration, it is assumed that the defrost timer does not advance when the defrost heater is on, so that only compressor on time is counted and the value of t_{dhj} is set to zero in Formula (25).

Additional routine tests undertaken at other **ambient temperatures** and/or **temperature control settings,** including user related loads such as door openings and small **processing load**s should be reviewed to assess defrosting behaviour. The observed **defrost interval** should be consistent with the measured proxy run time, otherwise it shall be classified as a **variable defrost** controller.

NOTE 2 These tests can be used to detect whether the run time controller is over-ridden by some other control mechanism during **normal use** conditions.

To qualify as a compressor run time defrost controller, the coefficient of variation (standard deviation divided by the mean) of the measured values for either compressor proxy run time $t_{prt,j}$ or compressor run time alone $t_{crt,j}$ shall be less than 5 % for the **defrost intervals** examined. Where the product does not comply with this requirement, it shall be classified as a **variable defrost** controller. The value of t_{prt} used in subsequent calculations shall be the average of all measured values of $t_{prt,j}$.

Once confirmed, the proxy run time can be used to calculate the actual **defrost interval** (in elapsed time) for any **temperature control setting**, **ambient temperature** and load processing condition, as a function of the compressor run time. For all **refrigerating appliances** with compressor run time defrost controllers, the percentage run time shall be reported for **steady-state** conditions in Annex B and the extra compressor run time (in h) shall be calculated for **defrost and recovery periods** (in Annex C, Formula (21). The **defrost interval** for each test condition and **temperature control setting** is given by:

$$t_{df} = \frac{t_{prt} - \Delta t_{dr}}{CRt_{SS}} = \frac{t_{crt} - \Delta t_{dr}}{CRt_{SS}} \tag{26}$$

where

t_{df} is the estimated **defrost interval** (elapsed time) for each **temperature control setting** and **ambient temperature** under test in h, including the impact of **defrost and recovery**

t_{prt} is the representative measured proxy run time of the compressor run time defrost controller (in h) in accordance with Formula (25)

CRt_{SS} is the compressor run time (as a percentage) during the **steady-state** operation for each **temperature control setting** and **ambient temperature** under test as determined in B.3.3 or B.4.3

Δt_{dr} is the representative incremental compressor run time (in hours) for **defrost and recovery** in accordance with C.5 in accordance with Formula (25)

t_{dh} is the representative time from the start of the defrost heater on until the compressor restarts in h during a **defrost and recovery period** where the timer advances during the heater operation, otherwise a value of zero

t_{crt} is the representative compressor run time in h from the initiation of one defrost heater operation until the initiation of the next defrost heater operation (this can be determined from rearranging Formula (25).

NOTE Z1 The exclusion of heater on time $t_{dh,j}$ and t_{dh} is the default assumption for calculations in Formula (25) and Formula (26). If the defrost timer does not advance during the defrost heater operation or if the laboratory is unsure, then the value of $t_{dh,j}$ and t_{dh} is set to be zero for both equations. It is essential to apply consistently heater on time $t_{dh,j}$ and t_{dh} in Formula (25) and Formula (26)."

In D.4.2, "Variable defrost controllers – declared defrost intervals", replace the first bullet of third paragraph with:

"— $\Delta t_{d\text{-}min}$ shall not exceed 12 h at an **ambient temperature** of 32 °C (elapsed time)."

9 Modifications to Annex F, "Energy consumption of specified auxiliaries"

In F.2.5, "Calculation of power consumption", add the following sentence and Note Z1:

"The data as set out in Table F.1 shall be used.

NOTE Z1 Values (R1 to R30) are defined based on the weather data of Karlsruhe/Germany covering the years 1998 to 2007. Power values that are specific to these regional values (P_{H1} to P_{H30} for bins R_1 to R_{30}) are normally provided by the product supplier or manufacturer."

Replace Table F.1 with:

"

Table F.1 — Format for temperature and humidity data – Ambient controlled anti-condensation heaters

Relative Humidity	RH band mid-point	Probability R_i at 16 °C	Probability R_i at 22 °C	Probability R_i at 32 °C	Heater W at 16 °C	Heater W at 22 °C	Heater W at 32 °C
0 to 10 %	5 %	0,00 %	0,00 %	0,34 %	P_{H1}	P_{H11}	P_{H21}
10 to 20 %	15 %	0,61 %	6,86 %	2,01 %	P_{H2}	P_{H12}	P_{H22}
20 to 30 %	25 %	3,11 %	14,57 %	1,61 %	P_{H3}	P_{H13}	P_{H23}
30 to 40 %	35 %	5,03 %	14,83 %	0,86 %	P_{H4}	P_{H14}	P_{H24}
40 to 50 %	45 %	5,09 %	11,67 %	0,18 %	P_{H5}	P_{H15}	P_{H25}
50 to 60 %	55 %	4,67 %	8,31 %	0,01 %	P_{H6}	P_{H16}	P_{H26}
60 to 70 %	65 %	3,39 %	5,54 %	0,00 %	P_{H7}	P_{H17}	P_{H27}

Relative Humidity	RH band mid-point	Probability R_i at 16 °C	Probability R_i at 22 °C	Probability R_i at 32 °C	Heater W at 16 °C	Heater W at 22 °C	Heater W at 32 °C
70 to 80 %	75 %	3,17 %	2,51 %	0,00 %	P_{H8}	P_{H18}	P_{H28}
80 to 90 %	85 %	2,85 %	0,66 %	0,00 %	P_{H9}	P_{H19}	P_{H29}
90 to 100 %	95 %	2,05 %	0,07 %	0,00 %	P_{H10}	P_{H20}	P_{H30}

"

Replace Formula (40) and the text just above and below with the following:

"The heater power can be calculated as follows:

$$W_{heaters} = \left[\sum_{i=1}^{k} (R_i \times P_{H\,i}) \right] \times 1{,}3 \tag{40}$$

where

$W_{heaters}$ is the annual average additional power consumption associated with the ambient controlled anti-condensation heater;

R_i is a regional factor to indicate the probability of the *i-th* temperature and humidity bin in Table F.1;

$P_{h,i}$ is the average heater power associated with the *i-th* temperature and humidity bin in Table F.1,

k is the total number of temperature and humidity bins used (= 30 if all bins in Table F.1 are used);

1,3 is the assumed loss factor (is the energy used by the heater (1,0) plus a loss component of 0,3 to account for heat leakage into the **compartment** and its subsequent removal by the refrigeration system)."

10 Modifications to Annex G, "Determination of load processing efficiency"

In G 5.3, "Quantification of additional energy used to process the load", replace Formula 51 and the text below with:

$$\Delta E_{additional\text{-}test} = \left(E_{end} - E_{start}\right) - P_{after} \times \left(t_{end} - t_{start}\right) - \sum_{i=1}^{n} \left(z_i \times \Delta E_{df\text{-}adder,i}\right) - \sum_{i=1}^{n} E_{df\text{-}heater,ij}$$

"

(51)

where

$\Delta E_{additional\text{-}test}$ is the additional energy consumed by the **refrigerating appliance** during the test to fully process the loaded added as specified in Clause G.3;

E_{start} is the accumulated energy reading at the start of **load processing efficiency** test as defined in G.4.1 in Wh;

E_{end} is the accumulated energy reading at the end of **load processing efficiency** test as defined in G.4.4 in Wh;

P_{after} is the **steady-state** power consumption that occurs after the load has been fully processed during the valid energy test period (Clause B.3 or Clause B.4) as defined in G.4.4 in W;

t_{start}	is the test time at the start of **load processing efficiency** test as defined in G.4.1 in h;
t_{end}	is the test time at the end of **load processing efficiency** test as defined in G.4.4 in h;
$\Delta E_{df\text{-}adder,i}$	is the average defrost adder calculated in Annex C for all valid defrosts specified for defrost system i for the relevant ambient temperature;
n	is the number of defrost systems in the appliance;
z	is a count of the number of defrosts that occur for defrost system i;
$E_{df\text{-}heater,ij}$	is the sum of the defrost heater energy for the j defrosts that occur during the load processing test for each defrost system i."

In G.5.5, "Load processing multiplier", modify first sentence of the second paragraph with:

"Where a load multiplier is used to estimate the additional energy associated with a **processing load**, it is important to calculate a normalized value for $E_{\text{input-nominal}}$ in order to correct for small variations in **compartment** temperatures and **ambient temperature** conditions that occur during a test."

11 Modifications to Annex H, "Determination of volume"

Replace H.2.2, "Determination of volume" with:

"The **volume** shall take into account the exact shapes of the walls including all depressions or projections. For through the door ice and water dispensers, the ice chute shall be included in the **volume** up to the dispensing function.

The items below shall be considered as being in place and their **volumes** deducted:

a) The **volume** of control housings, including integral parts of it.

b) The **volume** of the **evaporator** space (which includes any space made inaccessible by the **evaporator**) (see H.2.3).

c) The **volume** of air ducts required for proper cooling and operation of the unit.

d) Space occupied by **shelves** moulded into the inner door panel.

e) The **volume** of any insulating partition between **compartments** and/or **sub-compartments**. An average thickness of greater than 5 mm is considered to be an insulating partition.

For clarification, the through the door ice and water dispensers and the insulating hump are not included in the **volume**. No part of the dispenser unit shall be included as **volume**.

NOTE Z1 When the **volume** is determined, internal fittings are considered as not being in place, such as

— **shelves**;

— removable partitions;

— containers;

— convenience features (not classified as sub-compartments);

— interior light housings and lights."

*In **H.2.3**, "**Volume of evaporator space**" replace item c) and add item:*

"c) In the case of **refrigerant** filled shelving, the **volume** above the uppermost shelf and below the lowermost shelf, if the distance between the shelf and the nearest horizontal plane of the cabinet inner wall is less than or equal to 50 mm. All refrigerated shelves are considered as not present.

d) In the case where a fan is installed in an **unfrozen compartment** with a refrigerated wall evaporator or a plate style evaporator, the **volume** of the fan and the fan scroll."

Add the following *subclause H.Z1:*

"H.Z1 Calculation of the volume of the section or sub-compartment in the compartment whose target temperatures are different from each other

Calculation of the volume of the section or sub-compartment in the compartment whose target temperatures are different from each other

Figures H.Z1 to H.Z5 show typical examples of volume calculation for a **two-star section** or **compartment** inside the **freezer compartment** (**three-star** or **four-star**) and should be considered as generic examples. The examples shown in Figures H.Z1 to H.Z5 may be combined to adapt the calculation to be representative of the section or **compartment** in the **refrigerating appliance** under consideration.

Figures H.Z1, H.Z2 and H.Z4 can also be applied to a **chill sub-compartment** inside a **fresh food compartment**.

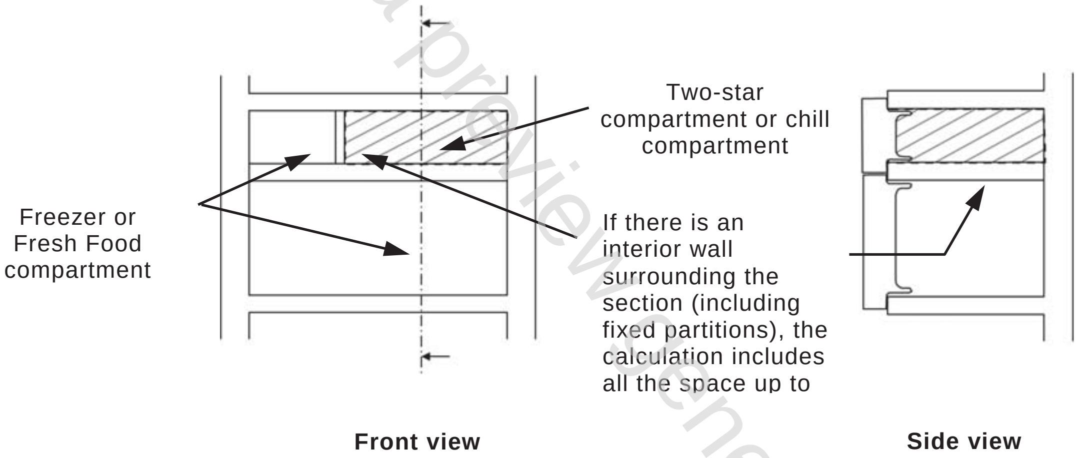

Figure H.Z1 — Part with partition in the freezer is a two-star compartment (or a chill compartment next to a fresh food compartment)

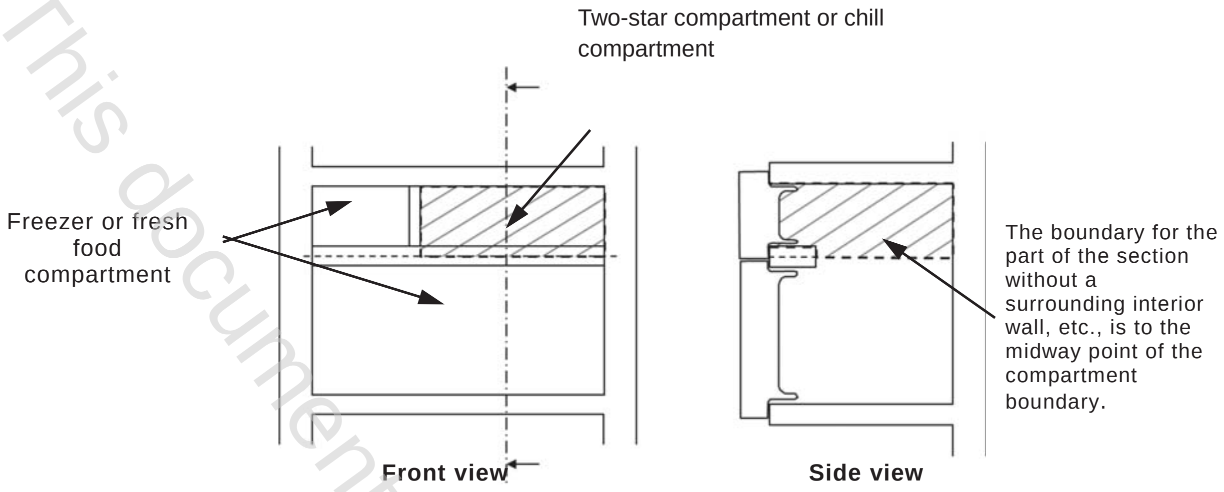

Figure H.Z2 — Part without partition next to the freezer or fresh food compartment is a two-star compartment or a chill compartment, respectively

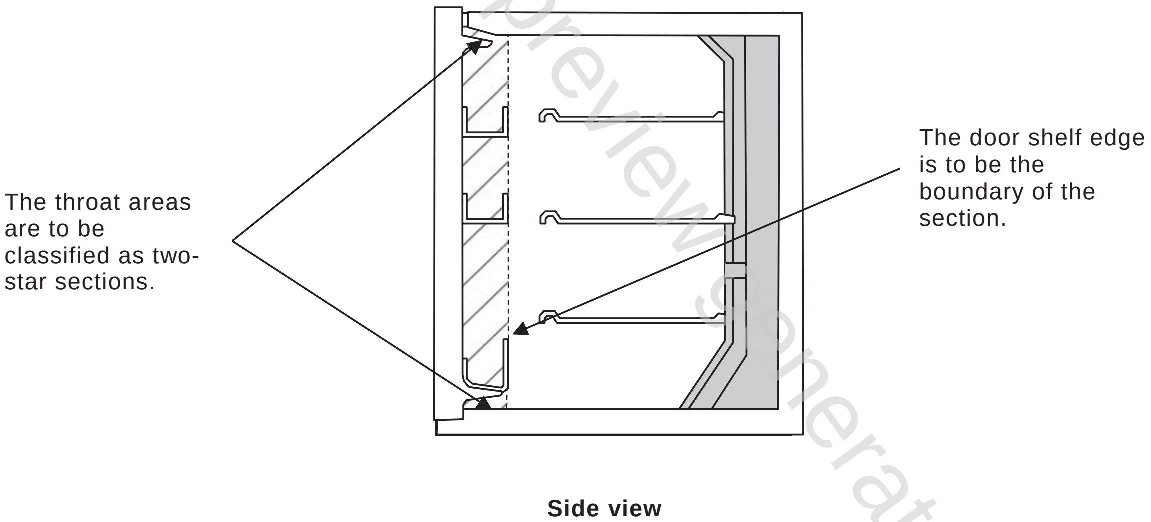

Figure H.Z3 — Freezer door shelves are a two-star section

The midway point of the thickness of the shelf is to be the boundary of the section.

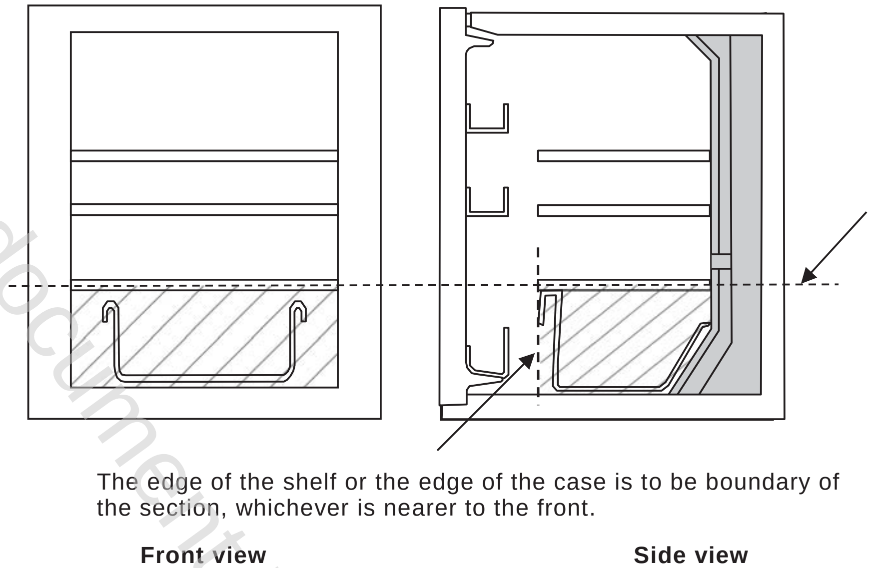

Figure H.Z4 — Drawer in the freezer is a two-star section (or a chill sub-compartment in a fresh food compartment)

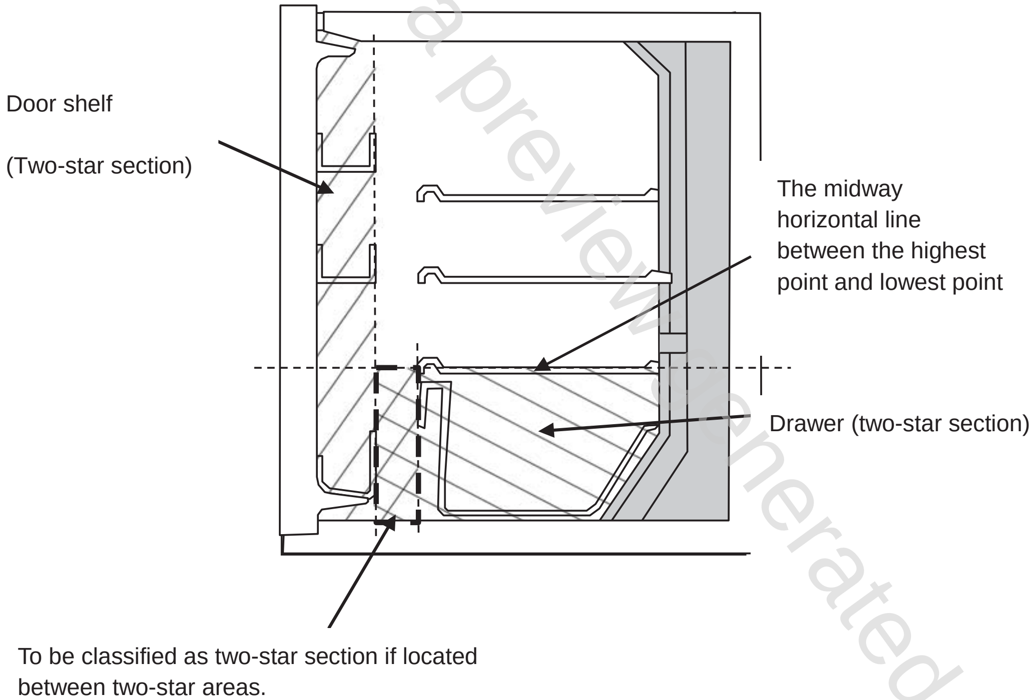

Figure H.Z5 — Space between a door shelf and drawer-type two-star section"

12 Modifications to Annex I, “Worked examples of energy consumption calculations”

In I.2, "Variable defrost – calculation of defrost intervals" replace definition of $\Delta t_{d\text{-}min}$ *with:*

"— $\Delta t_{dm\text{-}min}$ shall not exceed 12 h at an **ambient temperature** of 32 °C (elapsed time)."

In I.7, "Determination of annual energy consumption", replace the eighth paragraph with:

"The regional equivalent operating factors for a **refrigerating appliance** are:

— Annual days operating at an **ambient temperature** of 16 °C equivalent is 182,5 days (Day_{16});

— Annual days operating at an **ambient temperature** of 32 °C equivalent is 182,5 days (Day_{32}).

$Day_{16} + Day_{32}$ = 365 days

A regional function of the annual energy at 16 °C and 32 °C is expressed as follows:

$$E_{total} = f\left\{E_{daily16C}, E_{daily32C}\right\} + E_{aux} + \Delta E_{processing-annual} \quad \text{(Z1)}$$

$$E_{total} = \left(Day_{16} \times E_{daily16C}\right) + \left(Day_{32} \times E_{daily32C}\right) + \left(E_{aux}\right) + \left(\Delta E_{processing-annual}\right)$$

$$E_{total} = \left(\left(182{,}5 \times 597/1000\right)\right) + \left(182{,}5 \times 1230/1000\right) + \left(27{,}51\right) + \left(182{,}5 \times 135/\left(1{,}47 \times 1000\right)\right) + \left(182{,}5 \times 390/\left(1{,}15 \times 1000\right)\right) \text{ kWh/year}$$

$$E_{total} = \left(108{,}95 + 224{,}47 + 27{,}51 + 16{,}76 + 61{,}89\right) \text{ kWh/year}$$

$$E_{total} = 439{,}58 \text{ kWh/year}$$

NOTE The factor of 1 000 in this formula converts the units of Wh/d to kWh/d. Care is required to make sure all units are consistent."

In I.5, "Automatically controlled anti-condensation heater(s)", replace Table I.9 with:

"Table I.9 — Example of population-weighted humidity probabilities and heater wattages at 16 °C, 22 °C and 32 °C

RH band mid-point	**Regional Probability, R_i**			**Average heater power P_{Hi} (in W) (from manufacturer)**			**Probability times power at each ambient temperature**		
	16 °C	**22 °C**	**32 °C**	**16 °C**	**22 °C**	**32 °C**	**16 °C**	**22 °C**	**32 °C**
5 %	0,00 %	0,00 %	0,34 %	0	0	0	0,0000	0,0000	0,0000
15 %	0,61 %	6,86 %	2,01 %	0	0	1	0,0000	0,0000	0,0201
25 %	3,11 %	14,57 %	1,61 %	0	1	2	0,0000	0,1457	0,0322
35 %	5,03 %	14,83 %	0,86 %	0	2	3	0,0000	0,3966	0,0258
45 %	5,09 %	11,67 %	0,18 %	1	2	4	0,0509	0,2334	0,0720
55 %	4,6 7 %	8,31 %	0,01 %	1	3	5	0,0467	0,2493	0,0050
65 %	3,39 %	5,54 %	0,00 %	1	3	6	0,0339	0,1662	0,0000
75 %	3,17 %	2,51 %	0,00 %	2	4	7	0,0634	0,1004	0,0000
85 %	2,85 %	0,66 %	0,00 %	2	5	8	0,0570	0,0330	0,0000
95 %	2,05 %	0,07 %	0,00 %	3	6	9	0,0615	0,0042	0,0000
Total	30 %	65 %	5 %						
NOTE The example in this table is based on the weather data of Karlsruhe/Germany covering the years 1998 to 2007 for a hypothetical **refrigerating appliance**.									

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