



Brussels, **XXX**
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ANNEXES 1 to 9

ANNEXES

to the

COMMISSION DELEGATED REGULATION

supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances

and repealing Commission Delegated Regulation (EU) No 1060/2010

ANNEX I

Definitions applicable for the Annexes

The following definitions shall apply:

- (1) 'wine storage appliance' means a dedicated refrigerating appliance for the storage of wine, with precision temperature control for the storage conditions and target temperature as defined in Annex IV, Table 3, and equipped with anti-vibration measures;
- (2) 'dedicated refrigerating appliance' means a refrigerating appliance with only one type of compartment;
- (3) 'target temperature' (T_c) means the reference temperature inside a compartment c during testing, as set out in Annex IV, Table 3, and relates to the maximum temperature for testing energy consumption expressed as the average over time and over a set of sensors;
- (4) 'Quick Response (QR) code' means a matrix barcode included on the energy label of a product model that links to that model's information in the public part of the product registration database;
- (5) 'annual energy consumption' (AE) means the average daily energy consumption multiplied by 365 (days per year) expressed in kilowatt hour (kWh), as calculated in accordance with point 3 of Annex IV;
- (6) 'daily energy consumption' (E_{daily}) means the electricity used by a refrigerating appliance over 24 hours at reference conditions expressed in kilowatt hour per 24 hours (kWh/24h), calculated in accordance with point 4 of Annex III;
- (7) 'frozen compartment' means a compartment type with a target temperature equal to or below 0 °C; that is a 0-star, 1-star, 2-star, 3-star or 4-star compartment, with storage conditions and target temperatures, as set out in Annex IV, Table 3;
- (8) 'compartment type' means the declared compartment type in accordance with the refrigerating performance parameters T_{min} , T_{max} , T_c and others as set out in Annex IV, Table 3;
- (9) 'minimum temperature' (T_{min}) means the minimum temperature inside a compartment during storage testing, as set out in Annex IV, Table 3;
- (10) 'maximum temperature' (T_{max}) means the maximum temperature inside a compartment during storage testing, as set out in Annex IV, Table 3;
- (11) '0-star compartment' and 'ice-making compartment' means a frozen compartment with a target temperature and storage conditions of 0 °C, as set out in Annex IV, Table 3;
- (12) '1-star compartment' means a frozen compartment with a target temperature and storage conditions of -6 °C, as set out in Annex IV, Table 3;
- (13) '2-star compartment' means a frozen compartment with a target temperature and storage conditions of -12 °C, as set out in Annex IV, Table 3;
- (14) '3-star compartment' means a frozen compartment with a target temperature and storage conditions of -18 °C, as set out in Annex IV, Table 3;
- (15) 'freezer compartment' or '4-star compartment' means a frozen compartment with a target temperature and storage conditions of -18 °C and which fulfils the

requirements for the specific freezing capacity as set out in point (i) and (j) of Annex IV.1;

- (16) ‘specific freezing capacity’ (x) means the rate of heat extraction by an appropriately loaded compartment to bring the temperature of the light load from +25 to –18 °C at an ambient temperature of 25 °C, expressed in kg/12h, and in accordance with point 1(i) of Annex III;
- (17) ‘chill compartment’ means a compartment which is able to control its average temperature within a certain range without adjustments of its control, with a target temperature equal to 2°C, and storage conditions ranging from -3 °C to 3 °C, as set out in Annex IV, Table 3;
- (18) ‘fresh food compartment’ means an unfrozen compartment with a target temperature of 4 °C and storage conditions ranging from 0 °C to 8 °C, as set out in Annex IV, Table 3;
- (19) ‘unfrozen compartment’ means a compartment type with a target temperature equal to or above 4 °C, that is a pantry, wine storage, cellar or fresh food compartment with storage conditions and target temperatures, as set out in Annex IV, Table 3;
- (20) ‘pantry compartment’ means an unfrozen compartment with a target temperature of 17 °C and storage conditions ranging from 14 °C to 20 °C, as set out in Annex IV, Table 3;
- (21) ‘wine storage compartment’ means an unfrozen compartment with a target temperature of 12 °C and storage conditions ranging from 5 °C to 20 °C, as set out in Annex IV, Table 3;
- (22) ‘cellar compartment’ means an unfrozen compartment with a target temperature of 12 °C and storage conditions ranging from 2 °C to 14 °C, as set out in Annex IV, Table 3;
- (23) ‘airborne acoustical noise emission’ means the sound power level of the refrigerating appliance, expressed in dB(A) re 1 pW (A-weighted);
- (24) ‘anti-condensation heater’ means a heater which prevents condensation on the refrigeration appliance;
- (25) ‘ambient controlled anti-condensation heater’ means a heater which prevent condensation on the refrigeration appliance and where the heating capacity depends on either the ambient temperature or the ambient humidity or both;
- (26) ‘auxiliary energy’ (E_{aux}) means the energy used by auxiliary devices or functions that affect the energy consumption of a refrigerating appliance and where their actual energy consumption depends on the conditions of use or operation in kilowatt hour per annum (kWh/a);
- (27) ‘through-the-door device’ means a device that dispenses chilled or frozen load on demand from a refrigerating appliance, through an opening in its external door and without opening that external door, such as are ice-cube dispensers or chilled water dispensers;
- (28) ‘variable temperature compartment’ means a compartment intended for use as two (or more) alternative compartment types (for example 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. A compartment intended for use as a

single compartment type that can also meet storage conditions of other compartment types (for example a chill compartment that may also fulfil zero-star requirements) is not a variable temperature compartment;

- (29) 'network' means a communication infrastructure with a topology of links, an architecture, including the physical components, organisational principles, communication procedures and formats (protocols);
- (30) 'climate class' means the range of ambient temperatures, as set out in point 1(k) of Annex IV, in which the refrigerating appliances are intended to be used, and for which the required storage temperatures specified in Table 3 are met;
- (31) 'defrost and recovery period' means the period from the initiation of a defrost control cycle until stable operating conditions are re-established;
- (32) 'auto-defrost' means a feature by which compartments are defrosted without user intervention to initiate the removal of frost accumulation at all temperature-control settings or to restore normal operation, and the disposal of the defrosted water is automatic;
- (33) 'defrosting type' means the method to remove frost accumulation on the evaporator(s) of a refrigerating appliance, i.e. auto-defrost or manual defrost;
- (34) 'manual defrost' means not having an auto-defrost function;
- (35) 'low noise refrigerating appliance' means a refrigerating appliance with an airborne acoustical noise emission lower than 23 dB(A);
- (36) 'steady state power consumption' (P_{ss}) means the average power consumption in steady state conditions, expressed in watt (W);
- (37) 'incremental defrost and recovery energy consumption' (ΔE_{d-f}) means the extra average energy consumption for a defrost and recovery operation expressed in watt hour (Wh);
- (38) 'defrost interval' (t_{d-f}) means the representative average interval between the time of activation of the defrost heater, or the time of deactivation of the compressor if there is no defrost heater, in two subsequent defrost and recovery cycles, expressed in hour (h);
- (39) 'load factor' (L) means a factor accounting for the extra cooling load from introducing warm foodstuffs beyond what is already anticipated through the higher average ambient temperature for testing with values as set out in point 3(a) of Annex IV;
- (40) 'standard annual energy consumption' (SAE) means the reference annual energy consumption of a refrigeration appliance expressed in kWh, as calculated in accordance with point 4 of Annex IV;
- (41) 'combi parameter' (C) means a modelling parameter that takes into account the synergy effect when different compartment types are combined in one appliance, with values as set out in Annex IV, Table 4;
- (42) 'door heat loss factor' (D) means a compensation factor for combi appliances according to the number of different temperature compartments or the number of doors, whichever is lower and as set out in Annex IV, Table 5. For this factor, 'compartment' does not refer to sub-compartment;

- (43) ‘combi appliance’ means a refrigerating appliance that has more than one compartment type. An appliance with a 3- or 4-star compartment with a 2-star section or sub-compartment is not a combi appliance;
- (44) ‘2-star section’ means part of a 3-star or 4-star compartment which does not have its own individual access door or lid and in which the temperature is not warmer than $-12\text{ }^{\circ}\text{C}$;
- (45) ‘c’ means the index number suffix for a compartment type in an appliance;
- (46) ‘defrost factor’ (A_c) means a compensation factor that takes into account whether the refrigerating appliances has an auto-defrost or a manual defrost, with values as set out in Annex IV, Table 5;
- (47) ‘built-in factor’ (B_c) means a compensation factor that takes into account whether the refrigerating appliance is built-in or freestanding, with values as set out in Annex IV, Table 5;
- (48) ‘built-in appliance’ means a refrigerating appliance that is designed, tested and marketed exclusively:
- (a) to be installed in cabinetry or encased (top, bottom and sides) by panels;
 - (b) to be securely fastened to the sides, top or floor of the cabinetry or panels; and
 - (c) to be equipped with an integral factory-finished face or to be fitted with a custom front panel;
- (49) ‘freestanding appliance’ means a refrigerating appliance that is not a built-in appliance;
- (50) ‘ M_c ’ and ‘ N_c ’ means modelling parameters that take into account the volume-dependence of the energy use, with values as set out in Annex IV, Table 4;
- (51) ‘thermodynamic parameter’ (r_c) means a modelling parameter which corrects the standard annual energy consumption to an ambient temperature of 24°C , with values as set out in Annex IV, Table 4;
- (52) ‘refrigerator-freezer’ means a combi appliance that has at least one freezer compartment and one or more unfrozen or chill compartments, of which at least one is a fresh food compartment;
- (53) ‘overall dimensions’ means the space taken up by the refrigerating appliance (height, width and depth) with doors or lids closed, expressed in millimetres (mm);
- (54) ‘temperature rise time’ means the time taken, after the operation of the refrigerated system has been interrupted, for the temperature in a 3- or 4-star compartment to increase from -18 to $-9\text{ }^{\circ}\text{C}$ expressed in hours (h);
- (55) ‘winter switch’ means a control feature for a combi appliance with one compressor and one thermostat, consisting of a switching device that guarantees, even if it would not be required for the compartment where the thermostat is located, that the compressor keeps on working to maintain the proper storage temperatures in the other compartments;
- (56) ‘fast freeze’ means a feature that can be activated by the end-user according to the manufacturer's instructions, which decreases the storage temperature of the freezer or freezer compartment to achieve a faster freezing of unfrozen foodstuffs;

- (57) 'freezer' means a refrigerating appliance with only frozen compartments, at least one of which is a freezer compartment;
- (58) 'equivalent model' means a model with the same relevant technical and performance characteristics but placed on the market under a different model identifier;
- (59) 'display mechanism' means any screen, including tactile screen, or other visual technology used for displaying internet content to users;
- (60) 'tactile screen' means a screen responding to touch, such as that of a tablet computer, slate computer or a smartphone;
- (61) 'nested display' means visual interface where an image or data set is accessed by a mouse click, mouse roll-over or tactile screen expansion of another image or data set;
- (62) 'alternative text' means text provided as an alternative to a graphic allowing information to be presented in non- graphical form where display devices cannot render the graphic or as an aid to accessibility such as input to voice synthesis applications;
- (63) 'average power consumption' (P) means the average rate of energy consumption of a refrigerating appliance for a specific test condition or operation expressed in watt (W).

ANNEX II
Energy Efficiency classes

The energy efficiency class of refrigerating appliances shall be determined on the basis of the energy efficiency index (EEI) as set out in Table 1.

Table 1
Energy efficiency classes of refrigerating appliances

Energy efficiency class	Energy efficiency index (EEI)
A	$EEI \leq 41$
B	$41 < EEI \leq 51$
C	$51 < EEI \leq 64$
D	$64 < EEI \leq 80$
E	$80 < EEI \leq 100$
F	$100 < EEI \leq 125$
G	$EEI > 125$

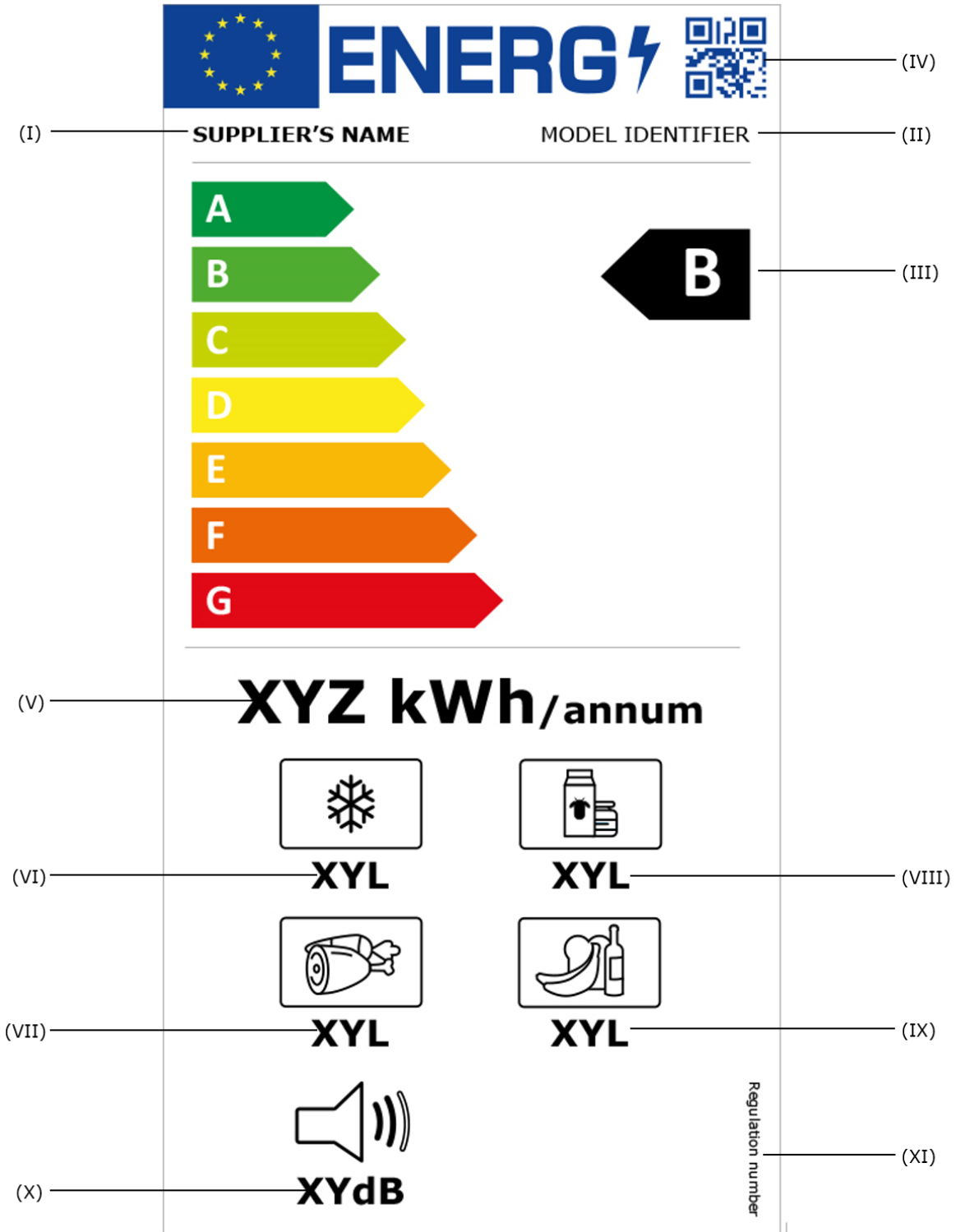
The EEI of a refrigerating appliance shall be determined in accordance with point 5 of Annex IV.

ANNEX III

Label for refrigerating appliances




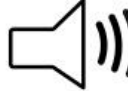
1. LABEL FOR REFRIGERATING APPLIANCES, EXCEPT FOR WINE STORAGE APPLIANCES

1.1. Label:



- 1.2. The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;
 - III. the energy efficiency class; the head of the arrow containing the energy efficiency class of the refrigerating appliance shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
 - IV. the QR code;
 - V. annual energy consumption in kWh per year, *AE* rounded to the nearest integer;
 - VI. the sum of the volumes of all frozen compartments, rounded to the nearest integer; if the refrigerating appliance does not contain frozen compartments;
 - VII. the sum of the volumes of all chill compartments, rounded to the nearest integer; if the refrigerating appliance does not contain chill compartments;
 - VIII. the sum of the volumes of all fresh food compartments, rounded to the nearest integer, if the refrigerating appliance does not contain fresh food compartments;
 - IX. the sum of the volumes of all unfrozen compartments excluding the volume of the fresh food compartments, rounded to the nearest integer, if the refrigerating appliance does not contain unfrozen compartments;
 - X. airborne acoustical noise emissions expressed in dB(A) re1 pW, rounded to the nearest integer. The symbol of the airborne acoustical noise shall vary with varying airborne acoustical noise emissions, as set out in Table 2.

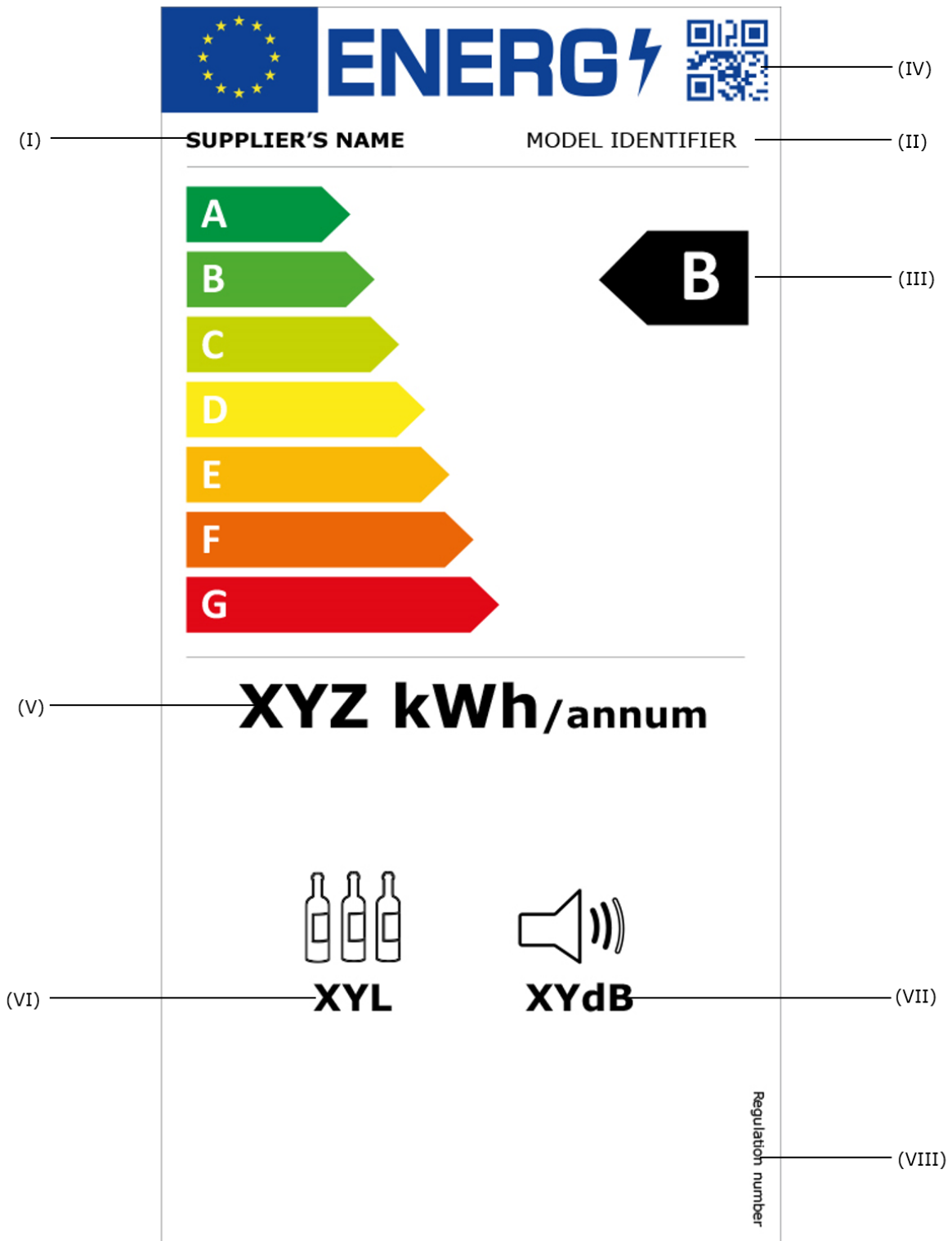
Table 2
Airborne acoustical noise

Airborne acoustical noise emissions	Symbol to be used
$< 23 \text{ dB(A)}$	
$\geq 23 \text{ dB(A)}$ and $< 36 \text{ dB(A)}$	
$\geq 36 \text{ dB(A)}$ and $< 42 \text{ dB(A)}$	
$\geq 42 \text{ dB(A)}$	

- XI. The number of this Regulation, that is *[PO- please insert the number of this Regulation]*.

2. LABEL FOR WINE STORAGE APPLIANCES

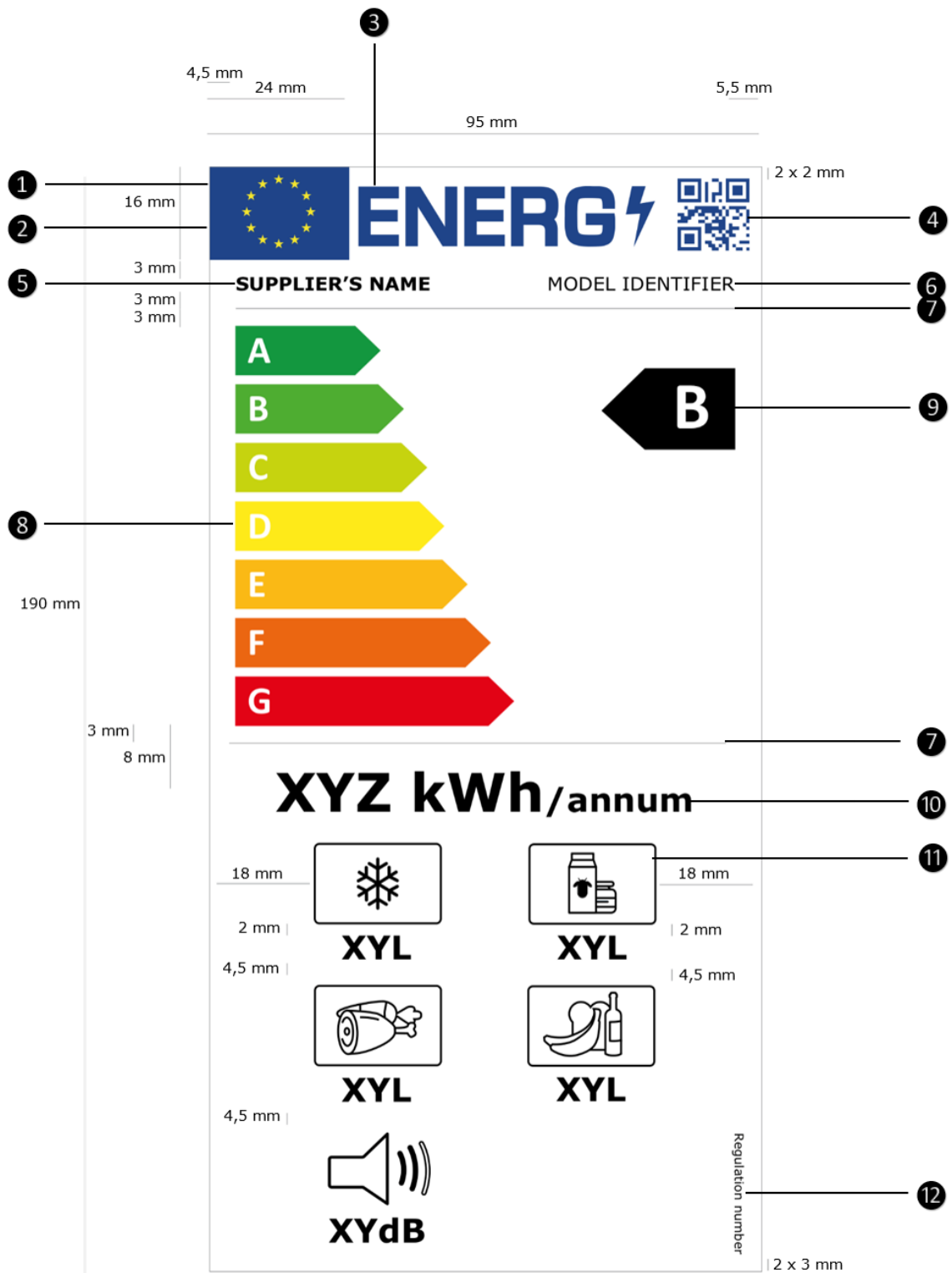
2.1. Label:



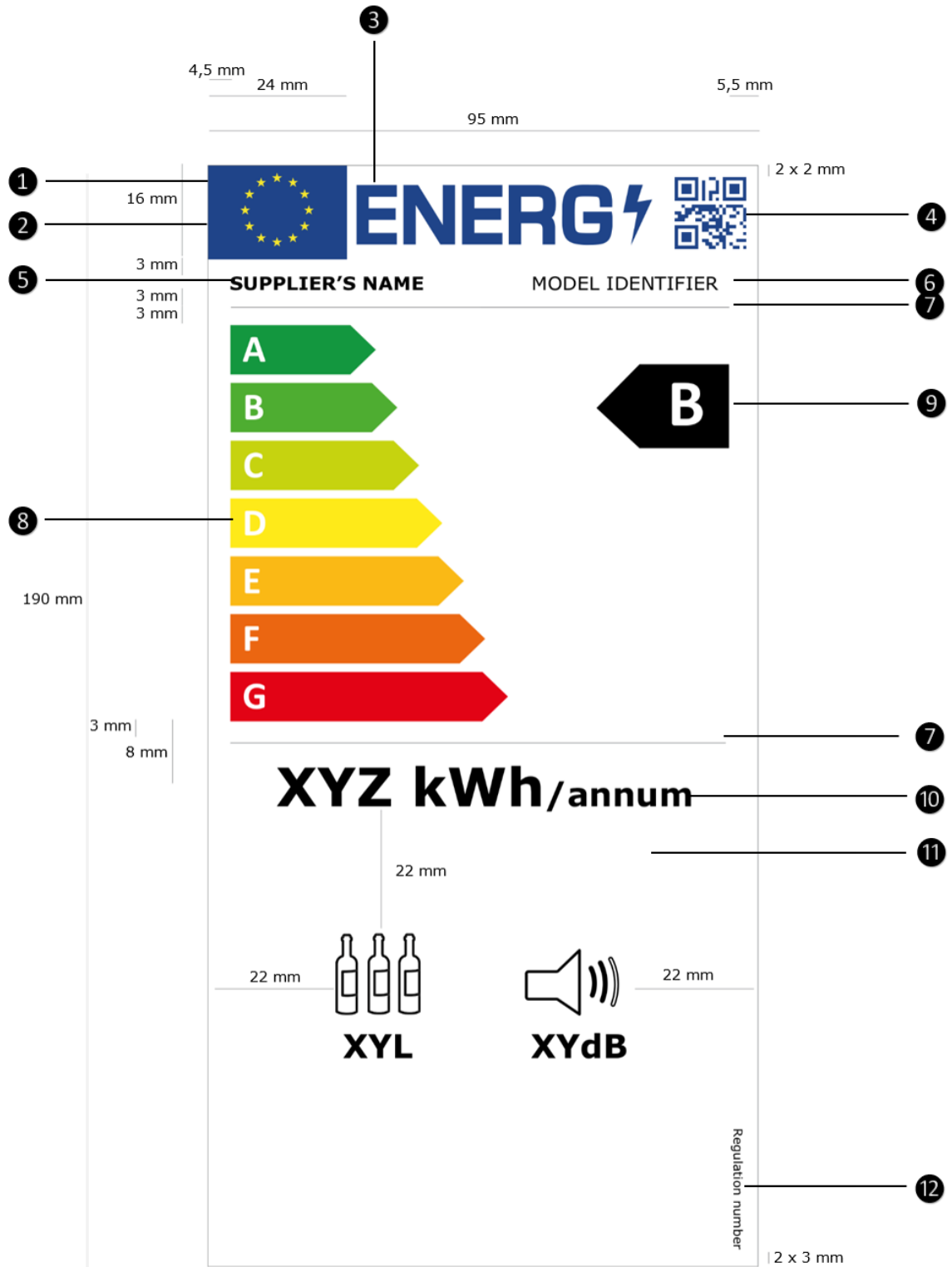
- 2.2. The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;
 - III. the energy efficiency class; the head of the arrow containing the energy efficiency class of the refrigerating appliance shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
 - IV. the QR code;
 - V. annual energy consumption in kWh per year, *AE* rounded to the nearest integer;
 - VI. the number of wine bottles that can be stored in the wine storage appliance;
 - VII. airborne acoustical noise emissions expressed in dB(A) re1 pW, rounded to the nearest integer. The symbol of the airborne acoustical noise shall vary with varying airborne acoustical noise emissions, as set out in Table 2;
 - VIII. The number of this Regulation, that is *[PO- please insert the number of this Regulation]*.

3. LABEL DESIGN

3.1. Label for refrigerating appliances, except for wine storage appliances



3.2. Label for wine storage appliances



3.3. Description


Whereby:

- (a) The background of the label shall be white.
- (b) The single typeface shall be Verdana.
- (c) Colours shall be CMYK – cyan, magenta, yellow and black, following this example: 0-70-100-0: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black.
- (d) The label shall fulfil all the following requirements (numbers refer to the numbers in the black bullets in the figure above):
 - (1) the border of the label shall have weight of 1 pt;
 - (2) the colour of the background of the EU logo shall be 1,80,0,0 and the colour of the stars shall be 0,0,100,0;
 - (3) the colour of the energy logo shall be 100,80,0,0;
 - (4) the colour of the QR code shall be 100,80,0,0;
 - (5) the supplier's name shall be in colour black in font bold, 9 pt;
 - (6) the model identifier shall be in colour black in font regular, 9 pt;
 - (7) the dividers shall be 86 mm wide and have a weight of 1 pt. The colour of the divider shall be 39,4,0,62;
 - (8) the A to G scale shall be as follows:
 - the colour of the energy rating scale shall be in colour white, and font bold, 19 pt;
 - the dimensions and colours of the energy rating scale shall be as follows:

Rating scale and class	Colours (CMYK)
<p>D: 36 mm C: 33 mm B: 29 mm A: 23 mm</p> <p>1,5 mm 1,5 mm 1,5 mm 1,5 mm 1,5 mm 1,5 mm 1,5 mm</p> <p>69 mm</p> <p>A B C D E F G</p> <p>G: 48 mm F: 44 mm E: 40 mm</p>	A-class: 100,0,100,0
	B-class: 70,0,100,0
	C-class: 30,0,100,0
	D-class: 0,0,100,0
	E-class: 0,30,100,0
	F-class: 0,70,100,0
	G-class: 0,100,100,0

(9) the energy efficiency class shall be as follows:


- the colour of the letter shall be white and the font shall be in bold, 33 pt and positioned in such a way that the edges of the rating scale arrow and the energy efficiency class arrow are aligned;
- the dimensions and colour shall be as follows:

Rating scale and class	Colours (CMYK)
	The arrow: 0-0-0-100

(10) the annual energy consumption and kWh shall be in font bold, 26 pt, "annum" shall be in font bold, 16 pt; and the text shall be centred;

(11) the pictograms shall be as follows:

- the dimensions and the colours shall be as follows:

Rating scale and class	Colours (CMYK)
	Pictogram: 0-0-0-100

- the text under the pictogram shall be in colour black, in font bold, 12 pt and shall be centred under the pictogram.

(12) the numbering of the regulation shall be in colour 0-0-0-100 and font regular 6 pt.

(e) If the label is printed over 95 mm wide and over 190 mm high, its content shall nevertheless be proportionate to the specifications above.

Measurement and calculation methods

For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards, or other reliable, accurate and reproducible methods, which takes into account the generally recognised state-of-the-art methods and are in line with the provisions set out below. The reference numbers of these harmonised standards have been published for this purpose in the *Official Journal of the European Union*:

1. General conditions for testing:
 - (a) for refrigerating appliances with anti-condensation heaters that can be switched on and off by the end-user, the anti-condensation heaters shall be switched on and — if adjustable — set at maximum heating and included in the annual energy consumption (AE) as daily energy consumption (E_{daily});
 - (b) for refrigerating appliances with ambient controlled anti-condensation heaters, the ambient controlled electric anti-condensation heaters shall be switched off or otherwise disabled, where possible, during the measurement of energy consumption. The energy consumption of these heaters shall be determined from their power consumption declared by the manufacturer for a set of ambient temperature and humidity conditions and added to the auxiliary energy;
 - (c) for refrigerating appliances with through-the-door devices that can be switched on and off by the end-user, the through-the-door devices shall be switched on during the energy consumption measurement but not operating;
 - (d) for the measurement of energy consumption, variable temperature compartments shall operate at the lowest temperature that can be set by the user to continuously maintain the temperature range, as set out in Table 3, of the compartment type which has the lowest temperature;
 - (e) for refrigerating appliances that can be digitally connected to a network, the communication module shall be activated but there is no need to have a specific type of communication and/or data exchange during the energy consumption test. During the energy consumption test it has to be ensured that the unit is connected to a network;
 - (f) for the performance of chill compartments:
 - (1) for a variable temperature compartment rated as a fresh food and/or chill compartment, the EEI shall be determined for each temperature condition and the highest value shall be applied;
 - (2) a chill compartment shall be able to control its average temperature within a certain range without user-adjustments of its control, this can be verified during the energy consumption tests at 16 °C and 32 °C ambient temperature.
 - (g) for adjustable volume compartments, when the volumes of two compartments are adjustable relative to one another by the user, the energy consumption and the volume shall be tested when the volume of the compartment with the higher target temperature is adjusted to its minimum volume;

- (h) for 2-star compartments or sections:
 - (1) a 2-star compartment or section is separated from the 3-star or 4-star volume by a partition, container, or similar construction;
 - (2) the rated volume does not exceed 20 % of the total volume of the compartment.
- (i) the specific freezing capacity is calculated as 12 times the light load weight, divided by the freezing time to bring the temperature of the light load from +25 to -18 °C at an ambient temperature of 25 °C expressed in kg/12h; the light load weight is 3,5 kg per 100 litre of freezer volume, and should be at least 2,0 kg;
- (j) for 4-star compartments, the freezing time to bring the temperature of the light load from +25 to -18 °C at all ambient temperatures, an ambient temperature of 25 °C, is smaller than or equal to 24h;
- (k) for the determination of the climate classes, the acronym for the ambient temperature range, that is SN, N, ST or T:
 - (1) the extended temperate (SN) has a temperature range from 10 °C to +32 °C;
 - (2) the temperate (N) has a temperature range from 16 °C to 32 °C;
 - (3) the subtropical (ST) with a temperature range from 16 °C to 38 °C; and
 - (4) the tropical (T) has temperature range from 16 °C to 43 °C.

2. Storage conditions and target temperatures per compartment type:

Table 3 sets out the storage conditions and target temperature per compartment type.

3. Determination of the annual energy consumption (AE):

- (a) For all refrigerating appliances, except for low noise refrigerating appliances:

The energy consumption shall be determined by testing at an ambient temperature of 16 °C and 32 °C.

To determine the energy consumption, the average air temperatures in each compartment shall be equal to or below the target temperatures specified in Table 3 for each compartment type claimed by the supplier. Values above and below target temperatures may be used to estimate the energy consumption at the target temperature for each relevant compartment by interpolation, as appropriate.

The main components of energy consumption to be determined are:

- a set of steady state power consumption values (P_{SS}) in W, each at a specific ambient temperature and at a set of compartment temperatures, which may be above or below target temperatures;
- the representative incremental defrost and recovery energy consumption (ΔE_{d-f}), in W, for products with one or more auto-defrost systems (each with its own defrost control cycle) measured at an ambient temperature of 16 °C (ΔE_{d-f16}) and 32 °C (ΔE_{d-f32});
- defrost interval (t_{d-f}), in h, for products with one or more defrost systems (each with its own defrost control cycle) measured at an ambient temperature of 16°C (t_{d-f16}) and 32°C (t_{d-f32}). The defrost interval t_{d-f} shall be determined for each system under a range of conditions;

- for each test performed the steady state power consumption and defrost and recovery energy consumption are added to form a daily energy consumption $E = 0.001 \cdot 24 \cdot (P_{ss} + \Delta E_{d-f} / t_{d-f})$ in kWh/24h, specific to the settings applied;
- auxiliary energy (E_{aux}) in kWh/a. The auxiliary energy is limited to the ambient controlled anti-condensation heater.

Table 3
Storage conditions and target temperature per compartment type

Group	Compartment type	Note	Storage conditions		T_c note [1]
			T_{min}	T_{max}	
Name	Name	no.	°C	°C	°C
Unfrozen compartments	Pantry	[2]	+14	+20	+17
	Wine storage	[3][7]	+5	+20	+12
	Cellar	[2]	+2	+14	+12
	Fresh food	[2]	0	+8	+4
Chill compartment	Chill	[4]	-3	+3	+2
Frozen compartments	0-star & ice-making	[5]	n.a.	0	0
	1-star	[5]	n.a.	-6	-6
	2-star	[5][6]	n.a.	-12	-12
	3-star	[5][6]	n.a.	-18	-18
	freezer (4-star)	[5][6]	n.a.	-18	-18

Notes:

[1] T_c is the target temperature for testing energy consumption and is the average over time and over a set of sensors.

[2] T_{min} and T_{max} are the average values measured over the test period (average over time and over a set of sensors).

[3] The average temperature variation over the test period for each sensor shall be no more than $\pm 0,5$ K. During a defrost and recovery period the average of all sensors is not permitted to rise more than 1.5 K above the average value of the compartment.

[4] T_{min} and T_{max} relate to instantaneous values during the test period.

[5] T_{max} relates to the maximum value measured over the test period (maximum over time and over a set of sensors).

[6] If the compartment is of the auto-defrosting type, the temperature (defined as the maximum of all sensors) is not permitted to rise more than 3.0 K during a defrost and recovery period.

[7] T_{min} and T_{max} relate to the average values measured over the test period (average over time for each sensor) and define the maximum allowed temperature operating range

n.a.=not applicable

Each of these parameters shall be determined through separate (sets of) tests. To improve the efficiency and accuracy of testing, the test period is not fixed, but is determined by whether a ‘steady state’ is reached.

The AE , expressed in kWh/a and rounded to two decimal places, shall be calculated as follows:

$$AE = 365 \cdot E_{daily} / L + E_{aux};$$

with the load factor $L = 0.9$ for dedicated 3 star and 4 star appliances or combi appliances with only 3- and 4-star compartments and $L=1.0$ for all other appliances,

and with the daily energy consumption E_{daily} in kWh/24h and rounded to three decimal places calculated from the daily energy consumption at an ambient temperature of 16 °C (E_{16}) and at an ambient temperature of 32 °C (E_{32}) as follows:

$$E_{daily} = 0.5 \cdot (E_{16} + E_{32});$$

where E_{16} and E_{32} are derived by interpolation of the energy test at the target temperatures set out in Table 3.

- (b) For low noise refrigerating appliances:

The energy consumption shall be determined as provided for in point 3(a), but at an ambient temperature of 25 °C instead of at 16 °C and 32 °C.

The daily energy consumption E_{daily} 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 derived by interpolation of the energy tests to the target temperatures listed in Table 3.

4. Determination of the standard annual energy consumption (SAE):

- (a) For all refrigerating appliances:

The Standard Annual Energy consumption SAE , in kWh/a and rounded to two decimal places, is calculated as follows:

$$SAE = C \cdot D \cdot \sum_{c=1}^n A_c \cdot B_c \cdot [V_c/V] \cdot (N_c + V \cdot r_c \cdot M_c)$$

where c is the compartment index and n is the total number of compartment types; V_c (in dm³ or litres, rounded to the first decimal placemal) is the compartment volume; V (in dm³ or litres, rounded to the nearest integer) is the volume with $V \leq \sum_{c=1}^n V_c$, r_c , N_c , M_c and C are modelling parameters specific to each compartment with values as set out in Table 4; and A_c , B_c and D are the compensation factors with values as set out in Table 5.

When carrying out the calculations above, for the variable temperature compartments, the compartment type with the lowest target temperature for which it is declared suitable is chosen.

- (b) Modelling parameters per compartment type for the calculation of the SAE :

The modelling parameters are set out in Table 4.

- (c) Correction factors per compartment type in the calculation of the SAE :

- (d) The correction factors are set out in Table 5.

5. Determination of the energy efficiency index (EEI):

The energy efficiency index (EEI), expressed in % and rounded to the first decimal place, calculated as:

$$EEI = AE / SAE$$

Table 4
The values of the modelling parameters per compartment type

Compartment type	r_c^a	N_c	M_c	C
Pantry	0,35	75	0,12	between 1,15 and 1,56 for refrigerator-freezers ^b , 1,15 for other combi appliances, 1,00 for dedicated refrigerating appliances
Wine storage	0,60			
Cellar	0,60			
Fresh food	1,00	138	0,12	
Chill	1,10			
0-star & ice-making	1,20	138	0,15	
1-star	1,50			
2-star	1,80			
3-star	2,10			
Freezer (4-star)	2,10			

^a $r_c = (T_a - T_c) / 20$; with $T_a = 24$ °C and T_c with values as set out in Table 3.

^b C for refrigerator-freezers is determined as follows:

where $frzf$ is the freezer volume $V_{freezer}$ as a fraction of total volume with $frzf = V_{freezer} / V$:

- if $frzf \leq 0,3$ then $C = 1,3 + 0,87 \cdot frzf$;
- else if $0,3 < frzf < 0,7$ then $C = 1,87 - 1,0275 \cdot frzf$;
- else $C = 1,15$.

Table 5
The values of the correction factors per compartment type

Compartment type	A_c		B_c		D			
	Manual defrost	Auto-defrost	Freestanding appliance	Built-in appliance	$\leq 2^a$	3^a	4^a	$> 4^a$
Pantry	1,00		1,00	1,04	1,00	1,02	1,035	1,05
Wine storage								
Cellar								
Fresh food								
Chill								
0-star & ice-making	1,00	1,10	1,00	1,10	1,00	1,02	1,035	1,05
1-star								
2-star								
3-star								
Freezer (4-star)								

^a number of doors or compartments, whichever is lowest.

ANNEX V

Product information sheet

1. The information in the product information sheet of refrigerating appliances shall be provided in the order of and according to the information set out in Table 5. If the refrigerating appliance contains multiple compartments of the same type, the lines for these compartments shall be repeated. If a certain compartment type is not present, the compartment parameters and values shall be ‘-’.

Table 5: Product information sheet

Supplier’s name or trade mark:				
Supplier’s address:				
Model identifier:				
Type of refrigerating appliance:				
Low-noise appliance:	[yes/no]	Design type:	[built-in/freestanding]	
Wine storage appliance:	[yes/no]	Climate class:	[extended temperate/temperate/subtropical/ tropical]	
Other refrigerating appliance:	[yes/no]			
General product parameters:				
Parameter		Value	Parameter	Value
Overall dimensions (millimetre)	Height	x	Volume (dm ³ or l)	x
	Width	x		
	Depth	x		
Annual energy consumption (kWh/year)	x	Energy efficiency class	[A/B/C/D/E/F/G]	
Airborne acoustical noise emissions (dBA re 1 pW)	x			

Compartment Parameters:

Compartment type		Compartment parameters and values			
		Compartment Volume (dm ³ or l)	Recommended temperature setting for optimised food storage (°C)	Specific freezing capacity (kg/12 h)	Defrost type (auto-defrost=A, manual defrost=M)
Pantry	[yes/no]	x	x	-	[A/M]
Wine storage	[yes/no]	x	x	-	[A/M]
Cellar	[yes/no]	x	x	-	[A/M]
Fresh food	[yes/no]	x	x	-	[A/M]
Chill	[yes/no]	x	x	-	[A/M]
0-star or ice-making	[yes/no]	x	x	-	[A/M]
1-star	[yes/no]	x	x	-	[A/M]
2-star	[yes/no]	x	x	-	[A/M]
3-star	[yes/no]	x	x	x,x or -	[A/M]
4-star	[yes/no]	x	x	x,x	[A/M]
2-star section	[yes/no]	x	x	-	[A/M]
Variable temperature compartment	compartment types	x	x	x,x or -	[A/M]

Light source parameters^a:

Type of light source	[type]
Energy efficiency class	[A/B/C/D/E/F/G]

Additional information:

Weblink to the manufacturer's website, where the information in Annex II.4.(a) of Regulation *[OP – please insert Regulation number of the accompanying Ecodesign Regulation]* is found:

^a as determined in accordance with Regulation (EU) *[OP – please insert Regulation number of the Ecodesign Regulation for light sources and separate control gears]*¹.

¹ Commission Delegated Regulation (EU) *[OP – please insert Regulation number]* of *[OP- please insert date]* supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with

2. One product information sheet may cover a number of refrigerating appliances supplied by the same supplier.
3. The information contained in the product information sheet may be given in the form of a copy of the label, either in colour or in black and white. Where this is the case, the information listed in points 1 or 2 not already displayed on the label shall also be provided.

regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012. (*[OP please insert OJ reference]*).

ANNEX VI
Technical documentation

1. The technical documentation referred to in Article 3(d) shall include the following elements:
 - (a) the information as set out in point 1 of Annex V;
 - (b) the information as set out in Table 6. If the refrigerating appliance contains multiple compartments of the same type, the lines for these compartments shall be repeated. If a certain compartment type is not present, the compartment parameters and values shall be '-'. If a parameter is not applicable, the values of that parameter shall be '-'.

Table 6: Additional information to be included in the technical documentation

A general description of the refrigerating model, sufficient for it to be unequivocally and easily identified:

Product specifications:

General product specifications:

Parameter	Value	Parameter	Value
Minimum ambient temperature (°C), for which the refrigerating appliance is suitable	x	Maximum ambient temperature (°C), for which the refrigerating appliance is suitable	x
Annual energy consumption (kWh/year)	x	Auxiliary energy (kWh/year)	x
Standard energy consumption (kWh/year)	x	EEI (%)	x
Temperature rise time (h)	x,xx	Combi parameter	x,xx
Door heat loss factor	x,xx	Load factor	x,xx
Anti-condensation heater type	[manual on-off/ambient controlled/other/none]		

Additional product specifications for refrigerating appliances, except for low noise refrigerating appliances:

Parameter	Value	Parameter	Value
Daily energy consumption at 16 °C (kWh/24h)	x,xxx	Daily energy consumption at 32 °C (kWh/24h)	x,xxx
Incremental defrost and recovery energy consumption ^a at 16 °C (Wh)	x	incremental defrost and recovery energy consumption ^a at 32 °C (Wh)	x
Defrost interval ^a at 16 °C (h)	x,xx	Defrost interval ^a at 32 °C (h)	x,xx

Additional product specifications for low noise refrigerating appliances:

Parameter	Value	Parameter	Value
Daily energy consumption at 25 °C (kWh/24h)	x,xxx	Defrost interval ^a at 25 °C (h)	x,xx

Compartment specifications^b:

Compartment type ^c	Compartment parameters and values					
	Target temperature in °C	Thermodynamic parameter	N _c	M _c	Defrost factor	Built-in factor
Pantry	x	x,xx	x	x,xx	x,xx	x,xx
Wine storage	x	x,xx	x	x,xx	x,xx	x,xx
Cellar	x	x,xx	x	x,xx	x,xx	x,xx
Fresh food	x	x,xx	x	x,xx	x,xx	x,xx
Chill	x	x,xx	x	x,xx	x,xx	x,xx
0-star or ice making	x	x,xx	x	x,xx	x,xx	x,xx
1-star	x	x,xx	x	x,xx	x,xx	x,xx
2-star	x	x,xx	x	x,xx	x,xx	x,xx

3-star	x	x,xx	x	x,xx	x,xx	x,xx
4-star	x	x,xx	x	x,xx	x,xx	x,xx
2-star section	x	x,xx	x	x,xx	x,xx	x,xx
Variable temperature compartment	x	x,xx	x	x,xx	x,xx	x,xx

For combi appliances with one thermostat and one compressor:

Winter switch	[yes/no]
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For appliances with a frozen compartment:

Fast freeze	[yes/no]
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Additional information:

The references of the harmonised standards or other reliable accurate and reproducible methods applied:

A list of all other equivalent models, where the information was obtained on the same basis:

^a only for products with one or more auto-defrost systems

2. Where the information included in the technical documentation file for a particular refrigerating appliance model has been obtained by calculation on the basis of design, or extrapolation from other equivalent models, the documentation shall include details of:
 - (a) such calculations or extrapolations, or both; and
 - (b) tests undertaken by suppliers to verify the accuracy of the calculations undertaken.

ANNEX VII

Information to be provided in visual advertisements, in promotional material, in distance selling, except distance selling on the internet

1. In visual advertisements, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(e) and Article 4(1)(c), the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex.
2. In promotional material, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(f) and Article 4(1)(d) the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex.
3. Any paper based distance selling shall show the energy class and the range of efficiency classes available on the label as set out in point 4 of this Annex.
4. The energy class and the range of efficiency classes shall be shown, as indicated in Figure 1, with:
 - (a) an arrow containing the letter of the energy class;
 - (b) the colour of the arrow matching the colour of the energy class, and;
 - (c) the range of available efficiency classes.



Figure 1: Coloured arrow example, with range of energy classes indicated

By derogation, if the visual advertisements, promotional material or paper based distance selling is printed in black and white, the colour of the arrow can be in black and white in that visual advertisements, promotional material or paper based distance selling.

5. Telemarketing based distance selling must specifically inform the customer of the energy class of the product and of the range of energy classes available on the label, and that the consumer can access the full label and the product information sheet through a free access website, or to by requesting a printed copy.
6. For all the situations mentioned in points 1 to 3, it must be possible for the customer to access the full label and the product information sheet through a link to the product database website, or to request a printed copy.

ANNEX VIII

Information to be provided in the case of distance selling through the Internet

1. The appropriate label made available by suppliers in accordance with Article 3(1)(g) shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in point 1.3 and 2.3 of Annex III for refrigerating appliances. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 3 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
2. The image used for accessing the label in the case of a nested display shall:
 - (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label;
 - (b) indicate the energy efficiency class of the product on the arrow in white in a font size equivalent to that of the price; and
 - (c) have one of the following two formats:



3. In the case of a nested display, the sequence of display of the label shall be as follows:
 - (a) the image referred to in point 2 of this Annex shall be shown on the display mechanism in proximity to the price of the product;
 - (b) the image shall link to the label;
 - (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
 - (d) the label shall be displayed by pop up, new tab, new page or inset screen display;
 - (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;
 - (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism;
 - (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price.
4. The appropriate product information sheet made available by suppliers in accordance with Article 3(1)(b) shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the product information sheet is clearly visible and legible. The product information sheet may be displayed using a nested display or by referring to the product registration database established under Regulation (EU) 2017/1369, in which case the link used for accessing the product information sheet shall clearly and legibly indicate 'Product information sheet'. If a nested display is used, the product information sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

ANNEX IX

Verification procedure for market surveillance purposes

The verification tolerances set out in this Annex relate only to the verification of the measured parameters by Member State authorities and shall not be used by the supplier as an allowed tolerance to establish the values in the technical documentation. The values and classes on the label or in the product fiche shall not be more favourable for the supplier than the values reported in the technical documentation.

When verifying the compliance of a product model with the requirements laid down in this Regulation, the authorities of the Member States shall apply the following procedure:

- (1) The Member State authorities shall verify one single unit of the model.
- (2) The model shall be considered to comply with the applicable requirements if:
 - (a) the values given in the technical documentation pursuant to Article 3(3) of Regulation (EU) 2017/1369 (declared values), and, where applicable, the values used to calculate these values, are not more favourable for the supplier than the corresponding values given in the test reports; and
 - (b) the values published on the label and in the product information sheet are not more favourable for the supplier than the declared values, and the indicated energy efficiency class is not more favourable for the supplier than the class determined by the declared values; and
 - (c) when the Member State authorities test the unit of the model, the determined values (that is the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances as given in Table 7.
- (3) If the results referred to in points 2(a) and (b) are not achieved, the model and all models that have been listed as equivalent models in the supplier's technical documentation shall be considered not to comply with this Regulation.
- (4) If the result referred to in point 2(c) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more different models that have been listed as equivalent models in the supplier's technical documentation.
- (5) The model shall be considered to comply with the applicable requirements if for these three units the arithmetical mean of the determined values complies with the respective tolerances given in Table 7.
- (6) If the result referred to in point 5 is not achieved, the model and all models that have been listed as equivalent models in the supplier's technical documentation shall be considered not to comply with this Delegated Regulation.
- (7) The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay once a decision has been taken on the non-compliance of the model according to points 3 and 6.

The Member State authorities shall use the measurement and calculation methods set out in Annex IV.

The Member State authorities shall only apply the verification tolerances set out in Table 7 and shall only use the procedure set out in points 1 to 7 for the requirements referred to in this Annex. No other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 7
Verification tolerances for measured parameters

Parameters	Verification
Volume	The determined value shall not more than 3 % or 1 litre lower — whichever is the greater value — than the declared value.
Freezing capacity	The determined value shall not be more than 10 % lower than the declared value.
Annual energy consumption	The determined value shall not be more than 10 % higher than the declared value.
Airborne acoustical noise emissions	The determined value shall not be higher the declared value.
Temperature rise time	The determined value shall not be more than 15 % higher than the declared.