



**COUNCIL OF
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COVER NOTE

from: Secretary-General of the European Commission,
signed by Mr Jordi AYET PUIGARNAU, Director

date of receipt: 29 September 2010

to: Mr Pierre de BOISSIEU, Secretary-General of the Council of the European Union

Subject: Commission Delegated Regulation (EU) No .../.../ of 28.9.2010 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of household refrigerating appliances

Delegations will find attached Commission document C(2010) 6481 final.

Encl.: C(2010) 6481 final



EUROPEAN COMMISSION

Brussels, 28.9.2010
C(2010) 6481 final

COMMISSION DELEGATED REGULATION (EU) No .../...

of 28.9.2010

**supplementing Directive 2010/30/EU of the European Parliament and of the Council
with regard to energy labelling of household refrigerating appliances**

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EXPLANATORY MEMORANDUM

CONTEXT OF THE PROPOSAL

Grounds for and objectives of the proposal

The environmental impact of household refrigerating appliances in the EU is significant, in particular the electricity consumption in the use phase, which was estimated to be 122 TWh per year in 2005, corresponding to 56 Mt CO₂ equivalent.

In order to enable consumers to buy more energy-efficient refrigerating appliances, a labelling scheme was put in place by Commission Directive 94/2/EC¹ of 21 January 1994 implementing Council Directive 92/75/EEC² with regard to energy labelling of household electric refrigerators, freezers and their combinations. The scheme provided standardised information on energy consumption of refrigerating appliances by means of a ranking of products on a scale from A to G, later amended in 2003 by adding two classes on top of A, A+ and A++.

The aim of this delegated Regulation is to introduce new, more ambitious, energy efficiency classes in order to adapt them to technological developments and introduce more dynamism into the scheme. It complements Commission Regulation (EC) No 643/2009³ of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for household refrigerating appliances.

General context

The market failure can be explained by the fact that energy-efficient household refrigerating appliances are usually more expensive at the time of purchase, even if they have significant cost savings potential over the life cycle. The benefits are often unclear or irrelevant to the person making the purchasing decision.

This problem has been addressed over the last 12-13 years both by the labelling scheme set out in Directive 94/2/EC and the energy efficiency requirements set out in Directive 96/57/EC⁴ of the European Parliament and of the Council on energy efficiency requirements for household electric refrigerators, freezers and combinations thereof, leading to an energy efficiency improvement of almost 30%.

The current labelling scheme remains an important market driver towards further improvements in energy efficiency. The preparatory study on household refrigerating appliances demonstrated, however, that if the current energy efficiency classes are not revised, a slowdown in energy efficiency improvement is expected to occur as of 2015. This is mainly due to the current design of the label. Revised in 2003 by adding two classes, A+ and A++, the scheme with 80% of products in class A or above in 2005 does not leave enough room for further product differentiation in the medium to long

¹ OJ L 45, 17.2.1994, p. 1.

² OJ L 297, 13.10.1992, p. 16.

³ OJ L 226, 28.8.2009, p. 23.

⁴ OJ L 236, 18.9.1996, p. 36.

run despite the technological potential.

According to the preparatory study, the total stock of household refrigerating appliances of 307 million units was responsible for 122 TWh annual electricity consumption in 2005 in the EU-27, reducing to 83 TWh in 2020 without further actions (i.e. with the current labelling scheme in place). The aim of the proposal is to keep this trend towards further energy efficiency improvements ongoing. It is estimated that the combined effect of the new ecodesign requirements set out in Regulation (EC) No 643/2009 and the revised labelling scheme set out in this draft delegated Regulation would lead to an additional reduction of 6 TWh in 2020 and 14 TWh in 2025.

Existing provisions in the area of the proposal

In addition to Regulation (EC) No 643/2009, the following measures are relevant for household refrigerating appliances:

- Directive 2006/95/EC⁵ of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (the Low Voltage Directive or LVD);
- Regulation (EC) No 842/2006⁶ of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases;
- Commission Directive 90/128/EEC⁷ of 23 February 1990 relating to plastic materials and articles intended to come into contact with foodstuffs;
- Directive 2002/96/EC⁸ of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (the WEEE Directive);
- Directive 2002/95/EC⁹ of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (the RoHS Directive);
- Regulation (EC) No 66/2010¹⁰ of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel.

Consistency with other EU policies and objectives

Increased market take-up of energy-efficient household refrigerating appliances, through the introduction of new energy efficiency classes and ecodesign requirements, will contribute to achieving the 20% energy savings potential anticipated by 2020 in the Energy Efficiency Action Plan (COM(2006) 545).

Furthermore, implementation of Directive 2010/30/EC¹¹ contributes to the EU's

⁵ OJ L 374, 27.12.2006, p. 10.

⁶ OJ L 161, 14.06.2006, p.1.

⁷ OJ L 75, 21.03.1990, p.19

⁸ OJ L 37, 13.2.2003, p.24.

⁹ OJ L 37, 13.2.2003, p. 19.

¹⁰ OJ L 27, 30.1.2010, p. 1.

objective to attain a reduction in greenhouse gases of at least 20 % in 2020.

Promotion of market take-up of efficient household refrigerating appliances complies with the Lisbon and renewed Sustainable Development Strategy as it will encourage investment in R&D and make for a level playing field. It is also in line with the Sustainable Consumption, Production and Industrial Policy Action Plan (COM(2008) 397).

The European Economic Recovery Plan (COM(2008) 800) mentions energy efficiency as one of the key priorities, in particular the promotion of the rapid take-up of products offering a 'high potential for energy savings', such as refrigerating appliances.

Finally, it will contribute to the objective of decoupling economic growth from the use of resources set out in the Europe 2020 strategy (COM(2010) 2020) under the flagship initiative: 'resource efficient Europe'.

CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

Consultation of interested parties

Consultation methods, main sectors targeted and general profile of respondents

Stakeholders were consulted from the very beginning of the preparatory study as well as through several public consultations held on 5 December 2008, 13 March 2009 and 26 March 2010, gathering representatives of Member States, environmental NGOs, European consumer organisations, suppliers and distributors.

An earlier version of the measure was supported by a qualified majority of Member State representatives in the committee in March 2009 but was suspended awaiting the outcome of the discussions between Council and Parliament on the recast of the framework Directive. Commission staff presented on 26 March 2010 a refined working document for public consultation of all experts, adapting energy efficiency classes in line with Article 10(4)(d) of Directive 2010/30/EU. The working document was sent out one month before the meeting and uploaded to the Commission's CIRCA system alongside the stakeholder comments received in writing.

Summary of responses and how they have been taken into account

All respondents throughout the consultation process generally supported the setting of new energy efficiency classes with comments on the following issues:

- Some stakeholders suggested introducing class A+++ from the start on the label on the ground that this class could be already populated by some extremely efficient models from the first date of application of the draft delegated Regulation. The draft act was amended accordingly.
- The draft delegated Regulation initially proposed that all household refrigerating appliances — including those placed on the market before the application of the new label — would be labelled and displayed at the point of sale in accordance with

¹¹

OJ L 153, 18.6.2010, p.1.

the new provisions and label format from 16 months after publication of the measure in the OJ. However, a majority of stakeholders and experts supported the view that appliances placed on the market before the entry into effect of the new measures should be allowed to be labelled and displayed at the point of sale in accordance with Directive 94/2/EC. The draft delegated Regulation was amended accordingly.

- Stakeholders, in particular suppliers and distributors, emphasised that they needed a transitional period between the first application date of the new label (12 months after publication in the OJ) and the date of mandatory display of the new classes in advertisements and technical promotional material. This 4-month transitional period is necessary for them to adapt and publish their promotional material, catalogues or websites. The draft delegated Regulation therefore integrates this time constraint.
- Some stakeholders asked for the measurement uncertainty to be reduced. The draft delegated Regulation provides for the measurement uncertainty to be reduced from 15% to 10%. It was agreed that the scope for further reduction should be assessed in the light of the round robin test which is to be run in the near future within the mandate issued to Cenelec for the design of a new testing standard.
- The first working document submitted for public consultation did not provide for the inclusion of wine storage appliances in the labelling scheme on the ground that no harmonised measurement method was available. Several stakeholders including the industry advocated the inclusion of this type of appliance. Such inclusion was supported also by the Member State experts. A new measurement procedure was consequently developed with the help of the industry in order to make it possible.
- The relevance of several correction factors used for the calculation of the Energy Efficiency Index was questioned. In the absence of reliable evidence it was agreed that the correction factors would be assessed as part of the revision of the Regulation to be carried out four years after its entry into force.

Collection and use of expertise

Scientific/expertise domains concerned

The preparatory study run on household refrigerating appliances within the framework of the ecodesign Directive 2009/125/EC (former Directive 2005/32/EC) provided a solid technical, environmental and economic analysis which was directly relevant for energy labelling. It was carried out by consortia of external consultants on behalf of the Commission's Directorate-General for Energy (DG ENER) and submitted for scrutiny to the stakeholders from the very start.

Main organisations/experts consulted

The preparatory study was conducted in an open process that took into account input from relevant stakeholders, including manufacturers and manufacturing associations, environmental NGOs, consumer and retail organisations, EU/EEA Member State experts and international organisations such as the International Energy Agency (IEA). The draft measure was notified to the WTO under the TBT agreement.

Summary of advice received and used

No potentially serious risks with irreversible consequences were mentioned.

The technical, market and economic analysis carried out in the framework of the preparatory study resulted in recommendations on ecodesign requirements and labelling. These recommendations were used as a basis for suggesting possible energy efficiency classes for public consultation.

Means used to make the expert advice publicly available

The preparatory study was given a dedicated website where interim results and further relevant materials were published regularly for timely stakeholder consultation and input. Written submissions from stakeholders are listed in the final reports. The study website was promoted on the ecodesign-specific websites of the former Transport and Energy DG (now DG ENER) and the Enterprise and Industry DG.

Impact assessment

Labelling has to be considered together with other policy options such as self-regulation or the setting of minimum performance (energy efficiency) requirements. An impact assessment was carried out pursuant to Article 15(4)(b) of Directive 2005/32/EC which also examined the option of labelling. The options listed below were discarded at an early stage:

- no EU action (legislation currently in place would not be amended, no new legislation would be adopted);
- support a voluntary commitment (none was tabled);
- adopt new ecodesign requirements only (with no revision of the labelling scheme);
- revise the labelling scheme only (with no new ecodesign requirements).

The option which appeared the most appropriate and which was also advocated by all stakeholders was to revise simultaneously the labelling scheme and the ecodesign requirements in a coordinated approach.

The extension of the scope was also considered to include new types of appliances which are increasingly gaining market share, such as absorption-type appliances or wine storage appliances.

It will ensure that:

- ongoing energy improvements are maintained and fostered;
- fair competition and product differentiation continues to operate on energy improvements;
- the cost-effective level of energy consumption is reached;
- the competitiveness of the industry is supported through the expansion of the EU

- internal market for sustainable products;
- the burdens on suppliers including SMEs are not excessive, as the transition periods take redesign cycles into account;
- there is no negative impact on employment in the EU.

LEGAL ELEMENTS OF THE PROPOSAL

Summary of the proposed action

The measure sets out new mandatory information requirements for placing household refrigerating appliances on the market and displaying labels at the point of sale to allow end-users to be informed on their energy consumption during use. A new energy efficiency class A+++ is introduced on the label as well as requirements related to the advertisement of those appliances.

Appliances increasingly gaining market share, which were previously excluded from the scope of the labelling Directive 94/2/EC, are now included such as wine storage appliances and absorption type appliances.

Legal basis

The draft delegated Regulation implements Directive 2010/30/EU, and in particular Article 10 thereof. It is based on Article 194 TFEU.

Subsidiarity principle

The draft delegated Regulation implements Directive 2010/30/EU in line with Article 10.

Proportionality principle

In accordance with the principle of proportionality, this measure does not go beyond what is necessary in order to achieve the objective.

The form of the supplementing measure is a delegated Regulation which is directly applicable in all Member States. This ensures that national and EU administrations will not incur any costs for transposition of the supplementing legislation into national legislation.

In terms of conformity assessment, there are no extra costs with respect to the current situation, where energy labelling is already mandatory.

The extension of the scope of the supplementing measures to include new types of appliances such as wine coolers and absorption-type appliances should entail marginal additional costs of market surveillance proportionate to the unit sales, i.e. 3 to 4%.

Choice of instrument

Proposed instrument: delegated Regulation.

Other means would not be adequate for the following reasons.

The proposed form of action is a delegated Regulation (supplementing Directive 2010/30/EU), because the objectives of the action can be achieved most efficiently by fully harmonised requirements (including timely entry into force) throughout the EU, ensuring free movement of compliant appliances and avoiding market fragmentation.

BUDGETARY IMPLICATION

The proposal has no implication for the EU budget.

ADDITIONAL INFORMATION

Simulation, pilot phase and transitional period

There will be a transitional period for the delegated act.

Repeal of existing legislation

Adoption of the delegated act includes the repeal of the existing Directive 96/57/EC.

Review/revision/sunset clause

The draft includes a revision clause.

European Economic Area

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.

COMMISSION DELEGATED REGULATION (EU) No .../...

of 28.9.2010

**supplementing Directive 2010/30/EU of the European Parliament and of the Council
with regard to energy labelling of household refrigerating appliances**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/30/EU of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products¹², and in particular Article 10 thereof,

Whereas:

- (1) Directive 2010/30/EU requires the Commission to adopt delegated acts as regards the labelling of energy-related products representing significant potential for energy savings and having a wide disparity in performance levels with equivalent functionality.
- (2) Provisions on the energy labelling of household refrigerating appliances were established by Commission Directive 94/2/EC of 21 January 1994 implementing Council Directive 92/75/EEC with regard to energy labelling of household electric refrigerators, freezers and their combinations¹³.
- (3) The electricity used by household refrigerating appliances accounts for a significant share of total household electricity demand in the Union. In addition to the energy efficiency improvements already achieved, the scope for further reducing the energy consumption of household refrigerating appliances is substantial.
- (4) Directive 94/2/EC should be repealed and new provisions should be laid down by this Regulation in order to ensure that the energy label provides dynamic incentives for manufacturers to further improve the energy efficiency of household refrigerating appliances and to accelerate the market transformation towards energy-efficient technologies.
- (5) The combined effect of the provisions set out in this Regulation, and in Commission Regulation (EC) No 643/2009 of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for

¹²

OJ L 153, 18.6.2010, p.1.

¹³

OJ L 45, 17.2.1994, p. 1.

household refrigerating appliances¹⁴, could amount to annual electricity savings of 6 TWh by 2020¹⁵, compared to the situation if no measures were taken.

- (6) There is also an opportunity for energy savings for products in the growing markets of absorption-type refrigerating appliances and wine storage appliances. Those appliances should therefore be included in the scope of this Regulation.
- (7) Absorption-type refrigerating appliances are noiseless, but consume significantly more energy than compression-type appliances. In order for end-users to make an informed decision, information on airborne acoustical noise emissions of household refrigerating appliances should be included on the label.
- (8) The information provided on the label should be obtained through reliable, accurate and reproducible measurement procedures that take into account the recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation bodies, as listed in Annex I to Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services¹⁶.
- (9) This Regulation should specify a uniform design and content for the label for household refrigerating appliances.
- (10) In addition, this Regulation should specify requirements as to the technical documentation and the fiche for household refrigerating appliances.
- (11) Moreover, this Regulation should specify requirements as to the information to be provided for any form of distance selling, advertisements and technical promotional materials for household refrigerating appliances.
- (12) It is appropriate to provide for a review of the provisions of this Regulation taking into account technological progress.
- (13) In order to facilitate the transition from Directive 94/2/EC to this Regulation, household refrigerating appliances labelled in accordance with this Regulation should be considered compliant with Directive 94/2/EC.
- (14) Directive 94/2/EC should therefore be repealed,

HAS ADOPTED THIS REGULATION:

Article 1
Subject matter and scope

- 1. This Regulation establishes requirements for the labelling of and the provision of supplementary product information on electric mains-operated household refrigerating appliances with a storage volume between 10 and 1 500 litres.

¹⁴

OJ L 191, 23.7.2009, p. 53.

¹⁵

when measured according to CENELEC standard EN 153, February 2006/EN ISO 15502, October 2005

¹⁶

OJ L 217, 5.8.1998, p. 18.

2. This Regulation shall apply to electric mains-operated household refrigerating appliances, including those sold for non-household use or for the refrigeration of items other than foodstuffs and including built-in appliances.

It shall also apply to electric mains-operated household refrigerating appliances that can be battery-operated.

3. This Regulation shall not apply to:

- (a) refrigerating appliances that are primarily powered by energy sources other than electricity, such as liquefied petroleum gas (LPG), kerosene and bio-diesel fuels;
- (b) battery-operated refrigerating appliances that can be connected to the mains through an AC/DC converter, purchased separately;
- (c) custom-made refrigerating appliances, made on a one-off basis and not equivalent to other refrigerating appliance models;
- (d) refrigerating appliances for tertiary sector application where the removal of refrigerated foodstuffs is electronically sensed and that information can be automatically transmitted through a network connection to a remote control system for accounting;
- (e) appliances where the primary function is not the storage of foodstuffs through refrigeration, such as stand-alone ice-makers or chilled drinks dispensers.

Article 2
Definitions

In addition to the definitions laid down in Article 2 of Directive 2010/30/EU, the following definitions shall apply:

- (1) ‘foodstuffs’ means food, ingredients, beverages including wine, and other items primarily intended for consumption which require refrigeration at specified temperatures;
- (2) ‘household refrigerating appliance’ means an insulated cabinet, with one or more compartments, intended for refrigerating or freezing foodstuffs, or for the storage of refrigerated or frozen foodstuffs for non-professional purposes, cooled by one or more energy-consuming processes, including appliances sold as building kits to be assembled by the end-user;
- (3) ‘built-in appliance’ means a fixed refrigerating appliance intended to be installed in a cabinet, in a prepared recess in a wall or similar location, and requiring furniture finishing;
- (4) ‘refrigerator’ means a refrigerating appliance intended for the preservation of foodstuffs with at least one compartment suitable for the storage of fresh food and/or beverages, including wine;

- (5) ‘compression-type refrigerating appliance’ means a refrigerating appliance in which refrigeration is effected by means of a motor-driven compressor;
- (6) ‘absorption-type refrigerating appliance’ means a refrigerating appliance in which refrigeration is effected by an absorption process using heat as the energy source;
- (7) ‘refrigerator-freezer’ means a refrigerating appliance with at least one fresh-food storage compartment and at least one compartment suitable for the freezing of fresh food and the storage of frozen foodstuffs under three-star storage conditions (the food-freezer compartment);
- (8) ‘frozen-food storage cabinet’ means a refrigerating appliance with one or more compartments suitable for the storage of frozen foodstuffs;
- (9) ‘food freezer’ means a refrigerating appliance with one or more compartments suitable for freezing foodstuffs with temperatures ranging from ambient temperature down to -18 °C, and which is also suitable for the storage of frozen foodstuffs under three-star storage conditions; a food freezer may also include two-star sections and/or compartments within the compartment or cabinet;
- (10) ‘wine storage appliance’ means a refrigerating appliance that has no compartment other than one or more wine storage compartments;
- (11) ‘multi-use appliance’ means a refrigerating appliance that has no compartment other than one or more multi-use compartments;
- (12) ‘equivalent household refrigerating appliance’ means a household refrigerating appliance model placed on the market with the same gross and storage volumes, same technical, efficiency and performance characteristics, and same compartment types as another household refrigerating appliance model placed on the market under a different commercial code number by the same manufacturer;
- (13) ‘end-user’ means a consumer buying or expected to buy a household refrigerating appliance;
- (14) ‘point of sale’ means a location where household refrigerating appliances are displayed or offered for sale, hire or hire-purchase.

The definitions set out in Annex I shall also apply.

Article 3
Responsibilities of suppliers

Suppliers shall ensure that:

- (a) each household refrigerating appliance is supplied with a printed label in the format and containing information as set out in Annex II;
- (b) a product fiche, as set out in Annex III, is made available;
- (c) the technical documentation as set out in Annex IV is made available on request to the authorities of Member States and to the Commission;

- (d) any advertisement for a specific model of household refrigerating appliance contains the energy efficiency class, if the advertisement discloses energy-related or price information;
- (e) any technical promotional material concerning a specific model of household refrigerating appliance which describes its specific technical parameters includes the energy efficiency class of that model.

Article 4
Responsibilities of dealers

Dealers shall ensure that:

- (a) each household refrigerating appliance at the point of sale bears the label provided by suppliers in accordance with Article 3 (a) on the outside of the front or top of the appliance, in such a way as to be clearly visible;
- (b) household refrigerating appliances offered for sale, hire or hire purchase where the end-user cannot be expected to see the product displayed, are marketed with the information to be provided by the suppliers in accordance with Annex V;
- (c) any advertisement for a specific model of household refrigerating appliance contains its energy efficiency class, if the advertisement discloses energy-related or price information;
- (d) any technical promotional material concerning a specific model of household refrigerating appliance, which describes its specific technical parameters, includes the energy efficiency class of that model.

Article 5
Measurement methods

The information to be provided under Article 3 shall be obtained by reliable, accurate and reproducible measurement procedures, which take into account the recognised state-of-the-art measurement methods, as set out in Annex VI.

Article 6
Verification procedure for market surveillance purposes

Member States shall apply the procedure laid down in Annex VII when assessing the conformity of the declared energy efficiency class, the annual energy consumption, the fresh and frozen food volumes, the freezing capacity and the airborne acoustical noise emissions.

Article 7
Revision

The Commission shall review this Regulation in the light of technological progress no later than four years after its entry into force. The review shall in particular assess the verification

tolerances set out in Annex VII and the possibilities for removing or reducing the values of the correction factors set out in Annex VIII.

Article 8
Repeal

Directive 94/2/EC is repealed from [date to be inserted: 12 months after the publication in the *Official Journal of the European Union* of this Regulation].

Article 9
Transitional provisions

1. Article 3 (d) and (e) and Article 4 (b), (c) and (d) shall not apply to printed advertisement and printed technical promotional material published before [date to be inserted: 16 months after the publication in the *Official Journal of the European Union* of this Regulation].
2. Household refrigerating appliances placed on the market before [date to be inserted: 12 months after the publication in the *Official Journal of the European Union* of this Regulation] shall comply with the provisions set out in Directive 94/2/EC
3. Household refrigerating appliances which comply with the provisions of this Regulation and which are placed on the market or offered for sale, hire or hire-purchase before [date to be inserted: 12 months after the publication in the *Official Journal of the European Union* of this Regulation] shall be regarded as complying with the requirements of Directive 94/2/EC.

Article 10
Entry into force and application

1. This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.
2. It shall apply from [date to be inserted: 12 months after the publication in the *Official Journal of the European Union* of this Regulation]. However, Article 3 (d) and (e) and Article 4 (b), (c) and (d) shall apply from [date to be inserted: 16 months after the publication in the *Official Journal of the European Union* of this Regulation].

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 28.9.2010

For the Commission
The President

ANNEX I **Definitions applicable for the purposes of Annexes II to IX**

For the purposes of Annexes II to IX, the following definitions shall apply:

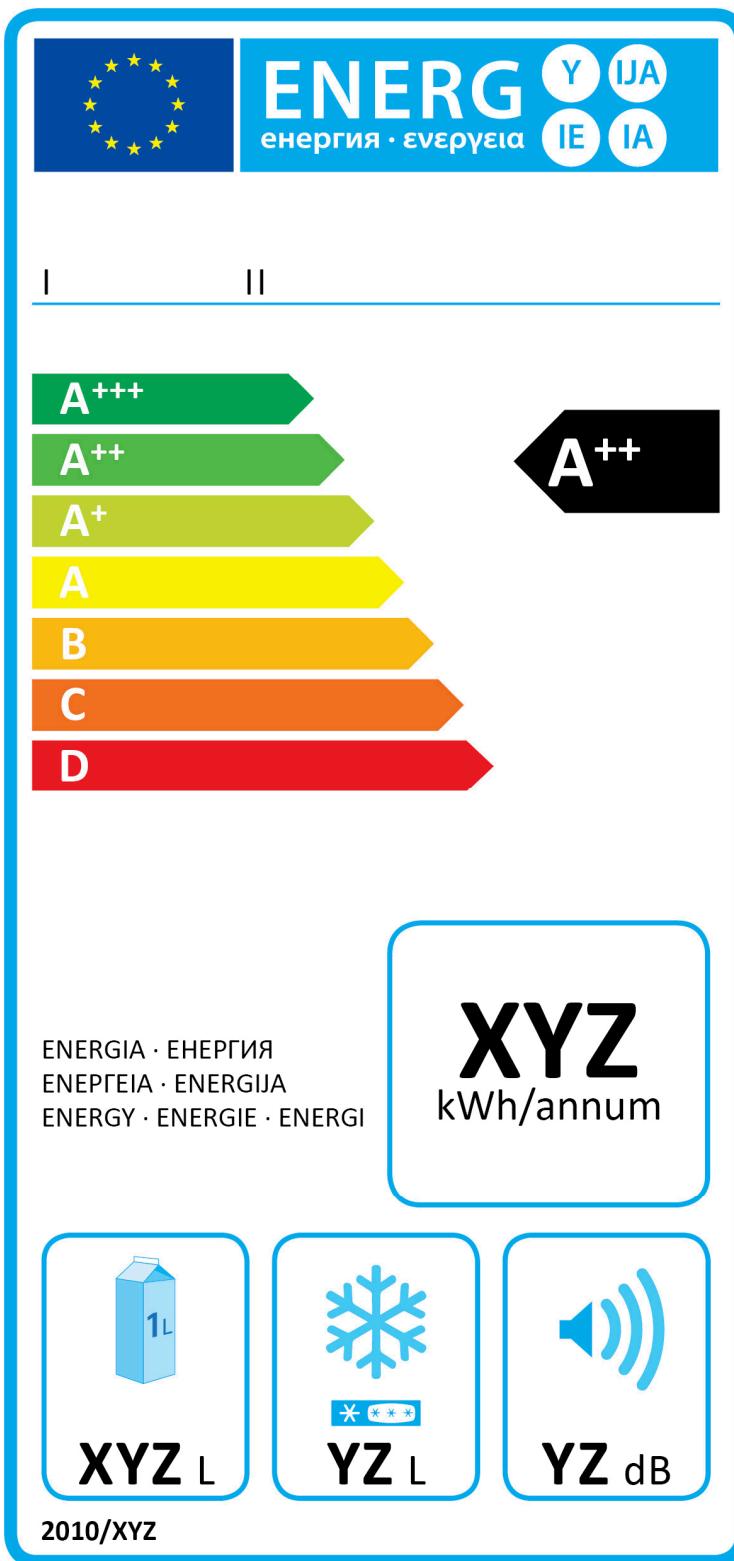
- (a) ‘frost-free system’ means a system automatically operated to prevent the permanent formation of frost, where cooling is provided by forced air circulation, the evaporator or evaporators are defrosted by an automatic defrost system, and the water from defrosting is disposed of automatically;
- (b) ‘frost-free compartment’ means any compartment defrosted by a frost-free system;
- (c) ‘refrigerator-cellar’ means a refrigerating appliance where at least one fresh-food storage compartment and one cellar compartment, but no frozen-food storage, chill or ice-making compartments, are present;
- (d) ‘cellar’ means a refrigerating appliance where only one or more cellar compartments are present;
- (e) ‘refrigerator-chiller’ means a refrigerating appliance where at least a fresh-food storage compartment and a chill compartment, but no frozen-food storage compartments, are present;
- (f) ‘compartments’ means any of the compartments listed in points (g) to (n);
- (g) ‘fresh-food storage compartment’ means a compartment designed for the storage of unfrozen foodstuffs, which may itself be divided into sub-compartments;
- (h) ‘cellar compartment’ means a compartment intended for the storage of particular foodstuffs or beverages at a temperature warmer than that of a fresh-food storage compartment;
- (i) ‘chill compartment’ means a compartment intended specifically for the storage of highly perishable foodstuffs;
- (j) ‘ice-making compartment’ means a low-temperature compartment intended specifically for the freezing and storage of ice;
- (k) ‘frozen-food storage compartment’ means a low-temperature compartment intended specifically for the storage of frozen foodstuffs and classified according to temperature as follows:
 - (i) ‘one-star compartment’: a frozen-food storage compartment in which the temperature is not warmer than -6 °C;
 - (ii) ‘two-star compartment’: a frozen-food storage compartment in which the temperature is not warmer than -12 °C;
 - (iii) ‘three-star compartment’: a frozen-food storage compartment in which the temperature is not warmer than -18 °C;

- (iv) ‘food freezer compartment’ (or ‘four-star compartment’): a compartment suitable for freezing at least 4.5 kg of foodstuffs per 100 l of storage volume, and in no case less than 2 kg, from ambient temperature down to -18 °C over a period of 24 hours, which is also suitable for the storage of frozen food under three-star storage conditions, and may include two-star sections within the compartment;
- (v) ‘0-star compartment’: a frozen-food storage compartment in which the temperature is <0 °C and which can also be used for the freezing and storage of ice but is not intended for the storage of highly perishable foodstuffs;
- (l) ‘wine storage compartment’ means a compartment exclusively designed either for short-term wine storage to bring wines to the ideal drinking temperature or for long-term wine storage to allow wine to mature, with the following features:
 - (i) continuous storage temperature, either pre-set or set manually according to the manufacturer’s instructions, in the range from +5 °C to +20 °C;
 - (ii) storage temperature(s) within a variation over time of less than 0.5 K at each declared ambient temperature specified by the climate class for household refrigerating appliances;
 - (iii) active or passive control of the compartment humidity in the range from 50% to 80%;
 - (iv) constructed to reduce the transmission of vibration to the compartment, whether from the refrigerator compressor or from any external source;
- (m) ‘multi-use compartment’ means a compartment intended for use at two or more of the temperatures of the compartment types and capable of being set by the end-user to continuously maintain the operating temperature range applicable to each compartment type according to the manufacturer’s instructions; however, where a feature can shift temperatures in a compartment to a different operating temperature range for a period of limited duration only (such as a fast-freeze facility), the compartment is not a ‘multi-use compartment’ as defined by this Regulation;
- (n) ‘other compartment’ means a compartment, other than a wine storage compartment, intended for the storage of particular foodstuffs at a temperature warmer than +14 °C;
- (o) ‘two-star section’ means part of a food-freezer, a food-freezer compartment, a three-star compartment or a three-star frozen-food storage cabinet which does not have its own individual access door or lid and in which the temperature is not warmer than -12 °C;
- (p) ‘chest freezer’, means a food freezer in which the compartment(s) is (are) accessible from the top of the appliance or which has both top-opening type and upright type compartments but where the gross volume of the top-opening type compartment(s) exceeds 75 % of the total gross volume of the appliance;

- (q) ‘top-opening type’ or ‘chest type’ means a refrigerating appliance with its compartment(s) accessible from the top of the appliance;
- (r) ‘upright type’ means a refrigerating appliance with its compartment(s) accessible from the front of the appliance;
- (s) ‘fast freeze’ means a reversible feature to 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 faster freezing of unfrozen foodstuffs;
- (t) ‘model identifier’ means the code, usually alphanumeric, which distinguishes a specific refrigerating appliance model from other models with the same trade mark or supplier’s name.

ANNEX II
Label

1. LABEL FOR HOUSEHOLD REFRIGERATING APPLIANCES CLASSIFIED IN ENERGY EFFICIENCY CLASSES A+++ TO C



[* Numbering of the Regulation to be added on the label before publication in the OJ]

(1) 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 determined in accordance with Annex IX; the head of the arrow containing the energy efficiency class of the household refrigerating appliance shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
- IV. annual energy consumption (AE_C) in kWh per year, rounded up to the nearest integer and calculated in accordance with point 3(2) of Annex VIII;
- V. sum of the storage volumes of all compartments that do not merit a star rating (i.e. operating temperature $> - 6$ °C), rounded to the nearest integer;
- VI. sum of the storage volumes of all frozen-food storage compartments that merit a star rating (i.e. operating temperature $\leq - 6$ °C), rounded to the nearest integer and star rating of the compartment with the highest share of that sum; where the household refrigerating appliances has no frozen-food storage compartment(s) the supplier shall declare '- L' instead of a value and leave the position for star rating blank;
- VII. airborne acoustical noise emissions expressed in dB(A) re1 pW, rounded to the nearest integer.

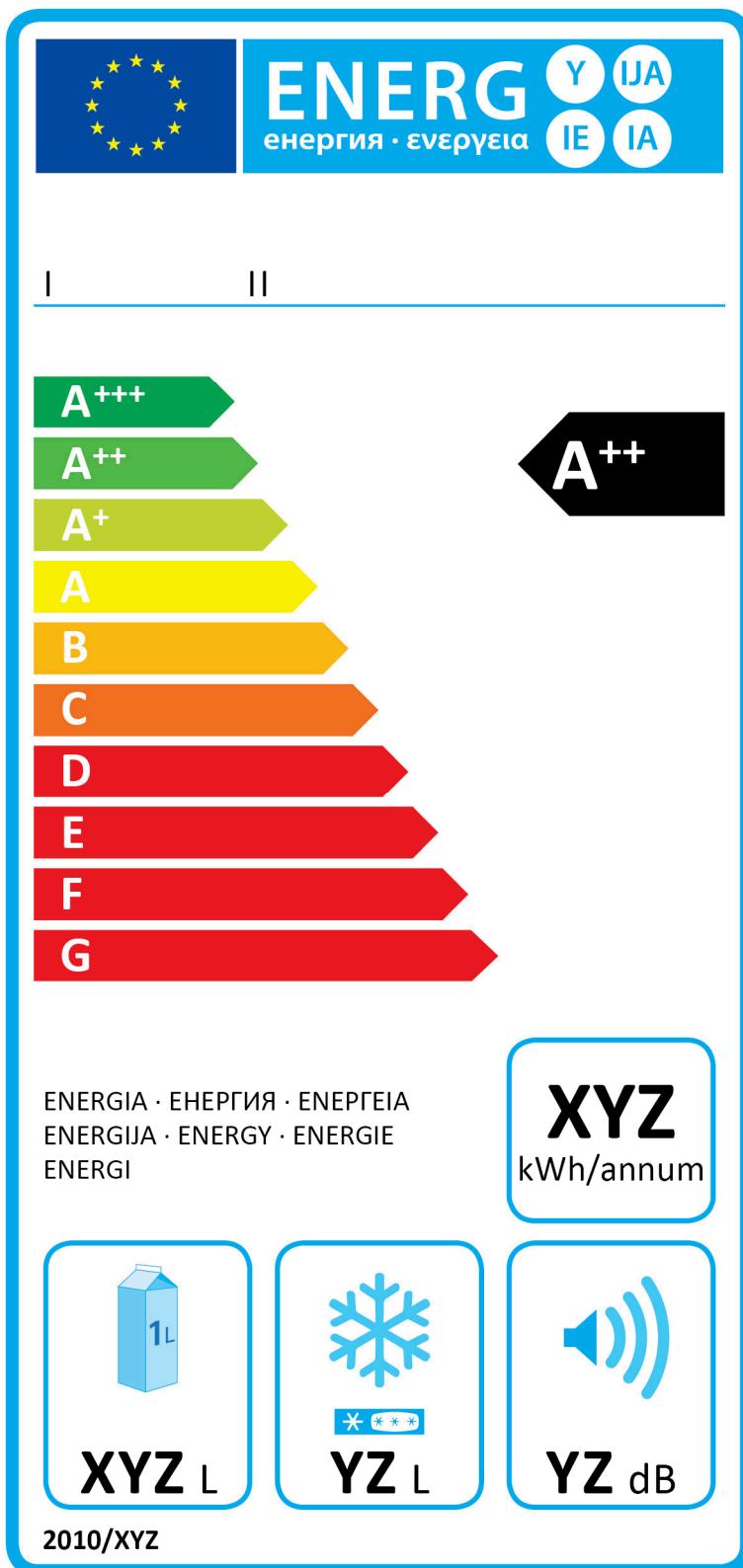
However, for wine storage appliances, point V and VI are replaced by the rated capacity in number of standard bottles of 75 centilitres that may be fitted in the appliance in accordance with the manufacturer's instructions.

(2) The design of the label shall be in accordance with point 3(1) of this Annex. By way of derogation, where a model has been awarded an 'EU Ecolabel' under Regulation (EC) No 66/2010¹⁷ of the European Parliament and of the Council, a copy of the EU Ecolabel may be added.

¹⁷

OJ L 27, 30.1.2010, p 1.

2. **LABEL FOR HOUSEHOLD REFRIGERATING APPLIANCES CLASSIFIED IN ENERGY EFFICIENCY CLASSES D TO G**

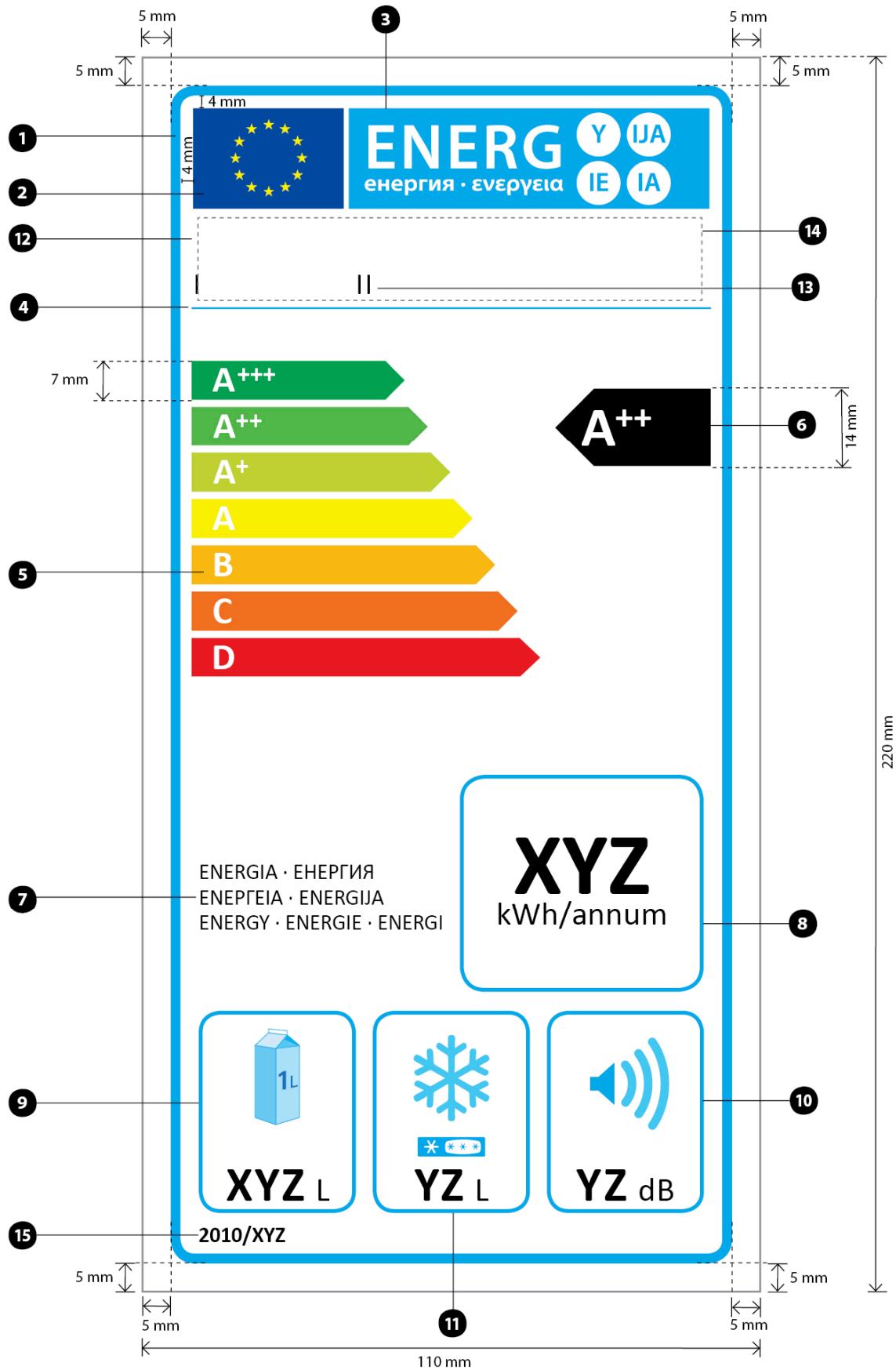


[* Numbering of the Regulation to be added on the label before publication in the OJ]

- (1) The information listed in point 1(1) shall be included in this label.
- (2) The design of the label shall be in accordance with point 3(2) of this Annex. By way of derogation, where a model has been awarded an 'EU Ecolabel' under Regulation (EC) No 66/2010, a copy of the EU Ecolabel may be added.

3. LABEL DESIGN

(1) For household refrigerating appliances classified in energy efficiency classes A+++ to C, except for wine storage appliances, the design of the label shall be as the following:



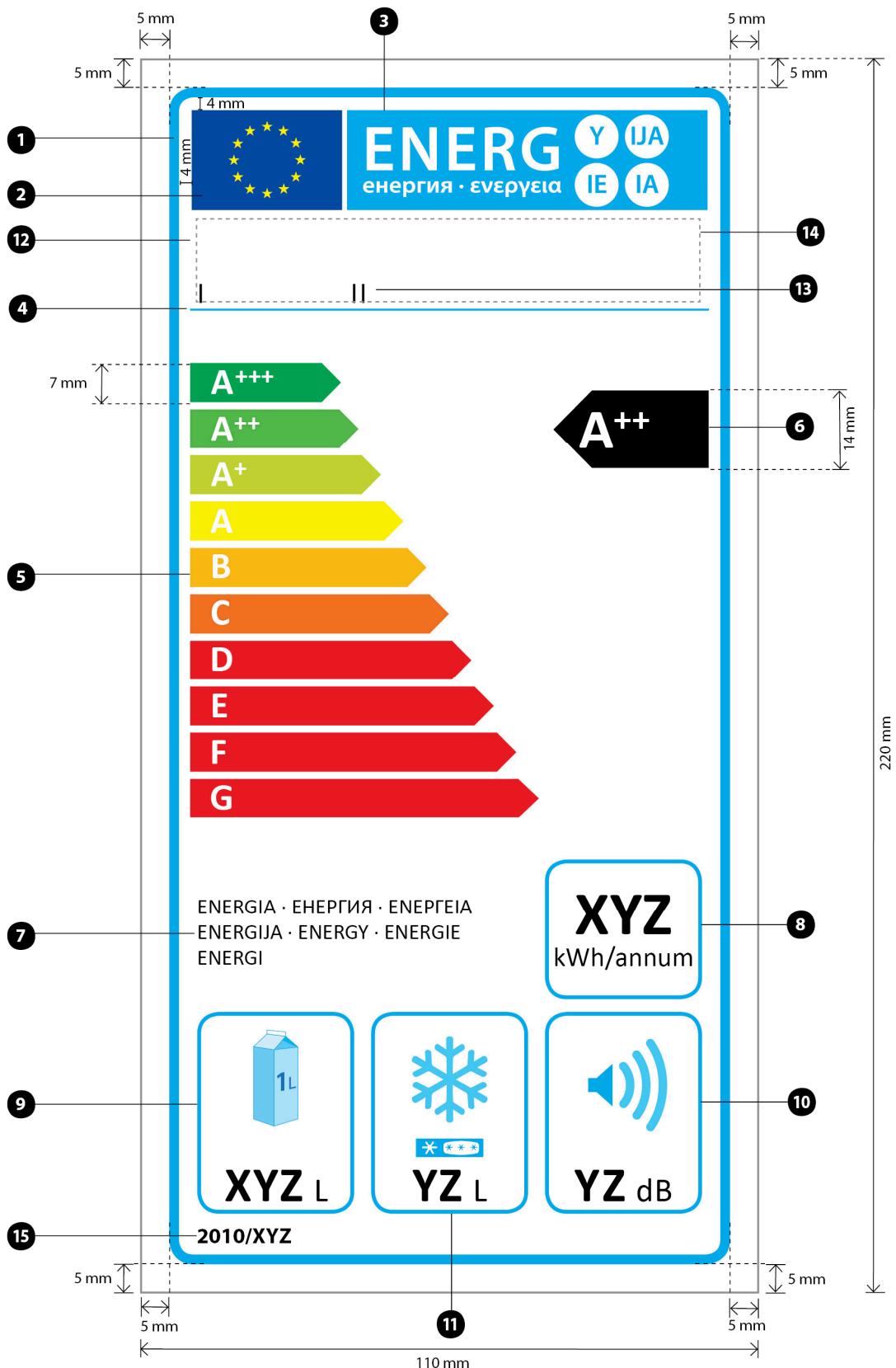
[* Numbering of the Regulation to be added on the label before publication in the OJ]

Whereby:

- (a) The label shall be at least 110 mm wide and 220 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background of the label shall be white.
- (c) Colours shall be CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0% cyan, 70% magenta, 100% yellow, 0% black.
- (d) The label shall fulfil all of the following requirements (numbers refer to the figure above):
 - ① **EU label border stroke:** 5 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - ② **EU logo** – colours: X-80-00-00 and 00-00-X-00.
 - ③ **Energy label:** colour: X-00-00-00.
Pictogram as depicted: EU logo + energy label: width: 92 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt – colour: Cyan 100% – length : 92,5 mm.
 - ⑤ **A-G scale**
 - **Arrow:** height: 7 mm, gap: 0.75 mm – colours:
Highest class: X-00-X-00,
Second class: 70-00-X-00,
Third class: 30-00-X-00,
Fourth class: 00-00-X-00,
Fifth class: 00-30-X-00,
Sixth class: 00-70-X-00,
Last class: 00-X-X-00.
 - **Text:** Calibri bold 19 pt, capitals and white; '+' symbols: Calibri bold 13 pt, capitals, white, aligned on a single row.
 - ⑥ **Energy efficiency class**
 - **Arrow:** width: 26 mm, height: 14 mm, 100% black;
 - **Text:** Calibri bold 29 pt, capitals and white; '+' symbols: Calibri bold 18 pt, capitals, white and aligned on a single row.
 - ⑦ **Energy**
 - **Text:** Calibri regular 11 pt, capitals, black.
 - ⑧ **Annual energy consumption:**
 - **Border:** 3 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - **Value:** Calibri bold 45 pt, 100% black.
 - **Second line:** Calibri regular 17 pt, 100% black.

- 9 Storage volumes of all compartments that do not merit a star rating:**
 - **Border:** 3 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - **Value:** Calibri bold 25 pt, 100% black. Calibri regular 17 pt, 100% black.
- 10 Airborne acoustical noise emissions:**
 - **Border:** 3 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - **Value:** Calibri bold 25 pt, 100% black. Calibri regular 17 pt, 100% black.
- 11 Storage volumes of all frozen-food storage compartments that merit a star rating:**
 - **Border:** 3 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - **Value:** Calibri bold 25 pt, 100% black. Calibri regular 17 pt, 100% black.
- 12 Supplier's name or trademark**
- 13 Supplier's model identifier**
- 14** The supplier's name or trademark and model identifier should fit in a space of 90 x 15 mm.
- 15 Numbering of the Regulation:**
Text: Calibri bold 11 pt.

(2) For household refrigerating appliances classified in energy efficiency classes D to G, except for wine storage appliances, the design of the label shall be the following:



[* Numbering of the Regulation to be added on the label before publication in the OJ]

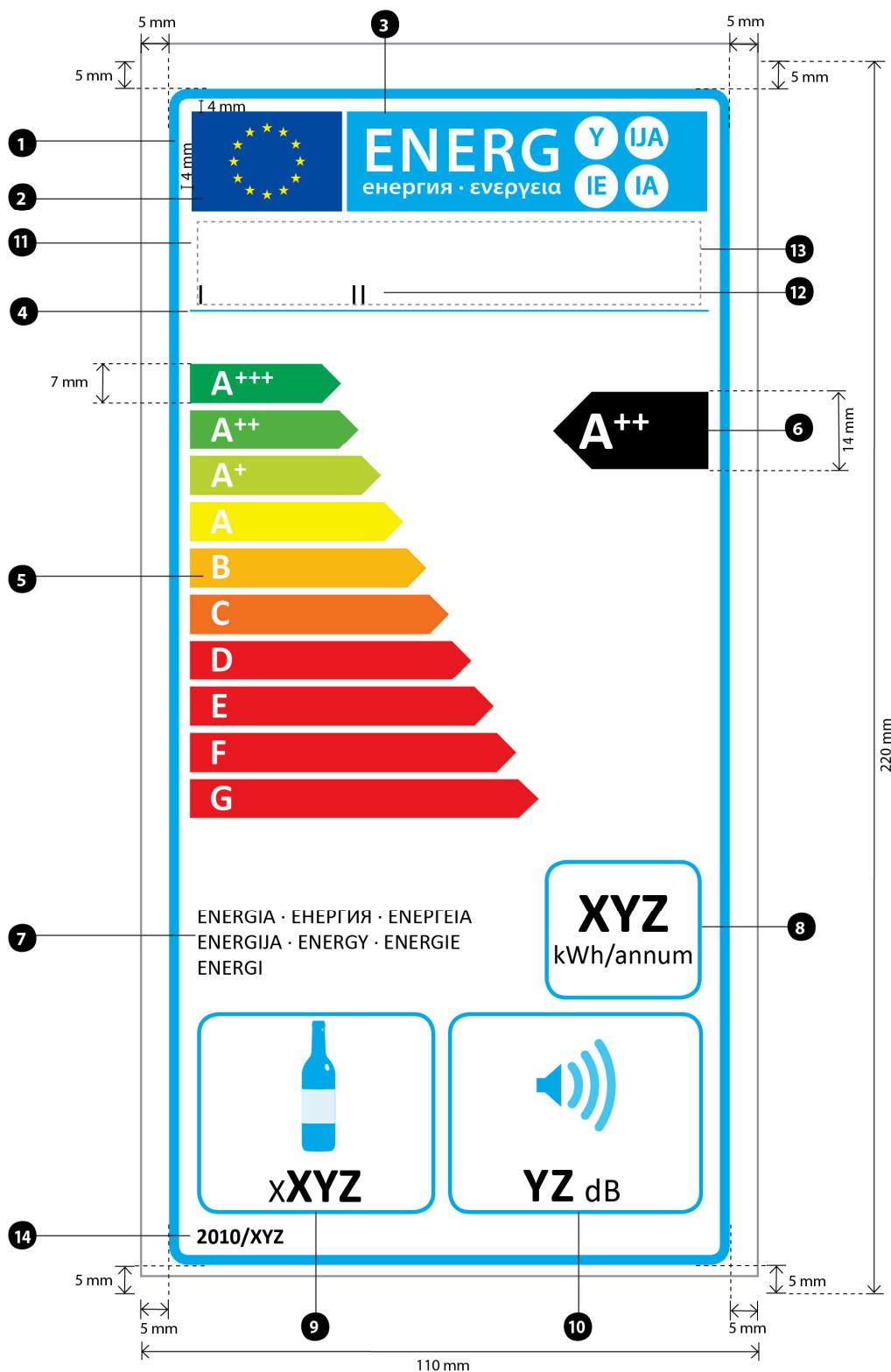
Whereby:

(a) The design of the label shall be in accordance with point 3(1) of this Annex except for number 8 where the following applies:

8 Annual energy consumption:

- **Border:** 3 pt – colour: Cyan 100% – round corners: 3.5 mm.
- **Value:** Calibri bold 32 pt, 100% black.
- **Second line:** Calibri regular 14 pt, 100% black.

(3) For wine storage appliances, the design of the label shall be the following:



[* Numbering of the Regulation to be added on the label before publication in the OJ]

Whereby:

- (a) The label shall be at least 110 mm wide and 220 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background of the label shall be white.
- (c) Colours shall be CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0% cyan, 70% magenta, 100% yellow, 0% black.
- (d) The label shall fulfil all of the following requirements (numbers refer to the figure above):
 - 1 EU label border stroke:** 5 pt – colour: Cyan 100% – round corners: 3.5 mm.
 - 2 EU logo** – colours: X-80-00-00 and 00-00-X-00.
 - 3 Energy label:** colour: X-00-00-00.
Pictogram as depicted: EU logo + energy label: width: 92 mm, height: 17 mm.
 - 4 Sub-logos border:** 1 pt – colour: Cyan 100% – length: 92,5 mm.
 - 5 A-G scale**
 - **Arrow:** height: 7 mm, gap: 0.75 mm – colours:
Highest class: X-00-X-00,
Second class: 70-00-X-00,
Third class: 30-00-X-00,
Fourth class: 00-00-X-00,
Fifth class: 00-30-X-00,
Sixth class: 00-70-X-00,
Last class(es): 00-X-X-00.
 - **Text:** Calibri bold 19 pt, capitals and white; '+' symbols: Calibri bold 13 pt, capitals, white, aligned on a single row.
 - 6 Energy efficiency class**
 - **Arrow:** width: 26 mm, height: 14 mm, 100% black;
 - **Text:** Calibri bold 29 pt, capitals, white; '+' symbols: Calibri bold 18 pt, capitals, white, aligned on a single row.

7 Energy

- **Text:** Calibri regular 11 pt, capitals, black.

8 Annual energy consumption:

- **Border:** 2 pt – colour: Cyan 100% – round corners: 3.5 mm.
- **Value:** Calibri bold 30 pt, 100% black.
- **Second line:** Calibri regular 14 pt, 100% black.

9 Rated capacity in number of standard wine bottles:

- **Border:** 2 pt – colour: Cyan 100% – round corners: 3.5 mm.
- **Value:** Calibri bold 28 pt, 100% black.
Calibri regular 15pt, 100% black.

10 Airborne acoustical noise emissions:

- **Border:** 2 pt – colour: Cyan 100% – round corners: 3.5 mm.
- **Value:** Calibri bold 25 pt, 100% black.
Calibri regular 17 pt, 100% black.

11 Supplier's name or trademark

12 Supplier's model identifier

13 The suppliers' name or trade mark and model identifier should fit in a space of
90 x 15 mm

14 Numbering of the Regulation:

Text: Calibri bold 11 pt.

ANNEX III **Product Fiche**

1. The information in the product fiche shall be provided in the following order and shall be included in the product brochure or other literature provided with the product.
 - (a) supplier's name or trade mark;
 - (b) supplier's model identifier as defined in Annex I, point (t);
 - (c) category of the household refrigerating appliance model in accordance with point 1 of Annex VIII;
 - (d) energy efficiency class of the model in accordance with in Annex IX;
 - (e) where the model has been awarded an 'EU Ecolabel award' under Regulation (EC) No 66/2010, this information may be included;
 - (f) annual energy consumption (AE_C) in kWh per year, rounded up to the nearest integer and calculated in accordance with point 3(2) of Annex VIII. It shall be described as: 'Energy consumption "XYZ" kWh per year, based on standard test results for 24 hours. Actual energy consumption will depend on how the appliance is used and where it is located';
 - (g) storage volume of each compartment and applicable star rating in accordance with point 1(1) VI of Annex II, if any;
 - (h) the design temperature of 'other compartments' within the meaning of point (n) of Annex I. For wine storage compartments, the coldest storage temperature, either pre-set in the compartment or capable of being set by an end-user and capable of being maintained continuously according to the manufacturer's instructions, shall be given;
 - (i) the mention 'frost-free' for the relevant compartment(s), as defined in point (b) of Annex I;
 - (j) 'power cut safe "X" h' defined as 'temperature rise time';
 - (k) 'freezing capacity' in kg/24 h;
 - (l) 'climate class' in accordance with point 1, Table 3 of Annex VIII, and expressed as: 'Climate class: W [*climate class*]. This appliance is intended to be used at an ambient temperature between "X" [*lowest temperature*] °C and "X" [*highest temperature*] °C'.
 - (m) airborne acoustical noise emissions expressed in dB(A) re1 pW, rounded to the nearest integer;
 - (n) if the model is intended to be a built-in appliance, an indication to this effect;
 - (o) for wine storage appliances, the following information: 'This appliance is intended to be used exclusively for the storage of wine'. This point shall not

apply to household refrigerating appliances that are not specifically designed for wine storage but may nevertheless be used for this purpose nor to household refrigerating appliances that have a wine storage compartment combined with any other compartment type.

2. One fiche may cover a number of refrigerating appliances models supplied by the same supplier.
3. The information contained in the fiche 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 point 1 not already displayed on the label shall also be provided.

Annex IV Technical documentation

1. The technical documentation referred to in Article 3 (c) shall include:
 - (a) the name and address of the supplier;
 - (b) a general description of the refrigerating appliance model, sufficient for it to be unequivocally and easily identified;
 - (c) where appropriate, the references of the harmonised standards applied;
 - (d) where appropriate, the other technical standards and specifications used;
 - (e) identification and signature of the person empowered to bind the supplier;
 - (f) technical parameters for measurements, established in accordance with Annex VIII:
 - (i) overall dimensions,
 - (ii) overall space required in use,
 - (iii) total gross volume(s),
 - (iv) storage volume(s) and total storage volume(s),
 - (v) star rating(s) of the frozen-food storage compartment(s)
 - (vi) defrosting type,
 - (vii) storage temperature,
 - (viii) energy consumption,
 - (ix) temperature rise time,
 - (x) freezing capacity,
 - (xi) power consumption,
 - (xii) wine storage compartment humidity,
 - (xiii) airborne acoustical noise emissions;
 - (g) the results of calculations performed in accordance with Annex VIII.
2. Where the information included in the technical documentation file for a particular household refrigerating appliance model has been obtained by calculation on the basis of design, or extrapolation from other equivalent refrigerating appliances, or both, the documentation shall include details of such calculations or extrapolations, or both, and of tests undertaken by suppliers to verify the accuracy of the calculations undertaken. The information shall also include a list of all other equivalent household refrigerating appliance models where the information was obtained on the same basis.

ANNEX V

Information to be provided in the cases where end-users cannot be expected to see the product displayed

1. The information referred to in Article 4(b) shall be provided in the following order:
 - (a) the energy efficiency class of the model as defined in Annex IX;
 - (b) the annual energy consumption in kWh per year, rounded up to the nearest integer and calculated in accordance with point 3(2) of Annex VIII;
 - (c) the storage volume of each compartment and applicable star rating in accordance with point 1(1) VI of Annex II, if any;
 - (d) the ‘climate class’ in accordance with point 1, Table 3 of Annex VIII;
 - (e) airborne acoustical noise emissions expressed in dB(A) re1 pW, rounded to the nearest integer;
 - (f) if the model is intended to be built-in, an indication to this effect;
 - (g) for wine storage appliances the following information: ‘This appliance is intended to be used exclusively for the storage of wine’. This point shall not apply to household refrigerating appliances that are not specifically designed for wine storage but may nevertheless be used for this purpose nor to household refrigerating appliances that have a wine storage compartment combined with any other compartment type.
2. Where other information contained in the product fiche is also provided, it shall be in the form and order specified in Annex III.
3. The size and font in which all the information referred in this Annex is printed or shown shall be legible.

ANNEX VI Measurements

1. For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements shall be made using a reliable, accurate and reproducible measurement procedure that takes into account the generally recognised state of the art measurement methods, including methods set out in documents the reference numbers of which have been published for that purpose in the Official Journal of the European Union.

2. GENERAL CONDITIONS FOR TESTING

The following general conditions for testing apply:

- (1) if anti-condensation heaters that can be switched on and off by the end-user are provided, they shall be switched on and — if adjustable — set at maximum heating;
- (2) if ‘through-the-door devices’ (such as ice or chilled water/drinks dispensers) which can be switched on and off by the end-user are provided, they shall be switched on during the energy consumption measurement but not operated;
- (3) for multi-use appliances and compartments, the storage temperature during the measurement of energy consumption shall be the nominal temperature of the coldest compartment type as claimed for continuous normal use according to the manufacturer’s instructions;
- (4) the energy consumption of a household refrigerating appliance shall be determined in the coldest configuration, according to the manufacturer’s instructions for continuous normal use for any ‘other compartment’ as defined in Annex VIII, Table 5.

3. TECHNICAL PARAMETERS

The following parameters shall be established:

- (a) ‘overall dimensions’, which are measured to the nearest millimetre;
- (b) ‘overall space required in use’, which is measured to the nearest millimetre;
- (c) ‘total gross volume(s)’, which is measured to the nearest whole number of cubic decimetres or litres;
- (d) ‘storage volume(s) and total storage volume(s)’, which is measured to the nearest whole number of cubic decimetres or of litres;
- (e) ‘defrosting type’;
- (f) ‘storage temperature’;
- (g) ‘energy consumption’ which is expressed in kilowatt hours per 24 hours (kWh/24h), to three decimal places;
- (h) ‘temperature rise time’;
- (i) ‘freezing capacity’;
- (j) ‘wine storage compartment humidity’, which is expressed as a percentage rounded to the nearest integer; and
- (k) ‘airborne acoustical noise emissions’.

ANNEX VII
Verification procedure for market surveillance purposes

For the purposes of checking conformity with the requirements laid down in Articles 3 and 4, Member State authorities shall test a single household refrigerating appliance. If the measured parameters do not meet the values declared by the supplier within the ranges defined in Table 1, the measurements shall be made on three more household refrigerating appliances. The arithmetical mean of the measured values of these three household refrigerating appliances shall meet the requirements within the ranges defined in Table 1.

Otherwise, the model and all other equivalent household refrigerating appliance models shall be considered not to comply.

In addition to the procedure set out in Annex VI, Member State authorities shall use reliable, accurate and reproducible measurement procedures, which take into account the generally recognised state of the art, including methods set out in documents the reference numbers of which have been published for that purpose in the Official Journal of the European Union.

Table 1

Measured parameter	Verification tolerances
Rated gross volume	The measured value shall not be less than the rated value* by more than 3% or 1 l, whichever is the greater value.
Rated storage volume	The measured value shall not be less than the rated value by more than 3% or 1 l, whichever is the greater value. Where the volumes of the cellar compartment and fresh food storage compartment are adjustable, relative to one another by the user, this measurement uncertainty applies when the cellar compartment is adjusted to its minimum volume.
Freezing capacity	The measured value shall not be less than the rated value by more than 10%.
Energy consumption	The measured value shall not be greater than the rated value (E_{24h}) by more than 10%.
Wine storage appliances	The value measured for the relative humidity shall not exceed the nominal range by more than 10%.
Airborne acoustical noise emissions	The measured value shall meet the rated value.

* 'rated value' means a value that is declared by the manufacturer.

ANNEX VIII
Classification of household refrigerating appliances, method for calculating the equivalent volume and the Energy Efficiency Index

1. CLASSIFICATION OF HOUSEHOLD REFRIGERATING APPLIANCES

Household refrigerating appliances are classified into categories as listed in Table 1.

Each category is defined by the specific compartment composition as specified in Table 2 and is independent of the number of doors and/or drawers.

Table 1: Household refrigerating appliances categories

Category	Designation
1	Refrigerator with one or more fresh-food storage compartments
2	Refrigerator-cellar, Cellar and Wine storage appliances
3	Refrigerator-chiller and Refrigerator with a 0-star compartment
4	Refrigerator with a 1-star compartment
5	Refrigerator with a 2-star compartment
6	Refrigerator with a 3-star compartment
7	Refrigerator-freezer
8	Upright freezer
9	Chest freezer
10	Multi-use and other refrigerating appliances

Household refrigerating appliances that cannot be classified in categories 1 to 9 because of compartment temperature are classified in category 10.

Table 2: Household refrigerating appliance classification and relevant compartment composition

Nominal temperature (for the EEI) (°C)	Design T	+12	+12	+5	0	0	-6	-12	-18	-18	Category (number)
Compartment types	Other	Wine storage	Cellar	Fresh food storage	Chill	0star/ Ice making	1 star	2 star	3 star	4 star	
Appliance category	Compartments composition										
REFRIGERATOR WITH ONE OR MORE FRESH-FOOD STORAGE COMPARTMENTS	N	N	N	Y	N	N	N	N	N	N	1
REFRIGERATOR-CELLAR, CELLAR and WINE STORAGE APPLIANCE	O	O	O	Y	N	N	N	N	N	N	2
	O	O	Y	N	N	N	N	N	N	N	
	N	Y	N	N	N	N	N	N	N	N	
REFRIGERATOR-CHILLER and REFRIGERATOR WITH A 0-STAR COMPARTMENT	O	O	O	Y	Y	O	N	N	N	N	3
	O	O	O	Y	O	Y	N	N	N	N	
REFRIGERATOR WITH A 1-STAR COMPARTMENT	O	O	O	Y	O	O	Y	N	N	N	4
REFRIGERATOR WITH A 2-STAR COMPARTMENT	O	O	O	Y	O	O	O	Y	N	N	5
REFRIGERATOR WITH A 3-STAR COMPARTMENT	O	O	O	Y	O	O	O	O	Y	N	6
REFRIGERATOR-FREEZER	O	O	O	Y	O	O	O	O	O	Y	7
UPRIGHT FREEZER	N	N	N	N	N	N	N	O	(Y) ^a	Y	8
CHEST FREEZER	N	N	N	N	N	N	N	O	N	Y	9
MULTI-USE AND OTHER APPLIANCES	O	O	O	O	O	O	O	O	O	O	10

Notes:

Y = the compartment is present; N = the compartment is not present; O = the presence of the compartment is optional;

a) also includes 3-star frozen-food cabinets.

Household refrigerating appliances are classified in one or more climate classes as specified in Table 3.

Table 3: Climate classes

Class	Symbol	Ambient average temperature °C
Extended temperate	SN	+ 10 to +32
Temperate	N	+16 to +32
Subtropical	ST	+16 to +38
Tropical	T	+16 to +43

The refrigerating appliance shall be capable of maintaining the required storage temperatures in the different compartments simultaneously and within the permitted temperature deviations (during the defrost cycle) as specified in Table 4 for the different types of household refrigerating appliances and for the appropriate climate classes.

Multi-use appliances and compartments shall be capable of maintaining the required storage temperatures of the different compartment types where these temperatures can be set by the end-user according to the manufacturer's instructions.

Table 4: Storage temperatures

Storage temperatures (°C)							
Other compartment	Wine storage compartment	Cellar compartment	Fresh-food storage compartment	Chill compartment	One-star compartment	Two-star compartment/section	Food freezer and three-star compartment /cabinet t***
t_{om}	t_{wma}	t_{cm}	$t_{1m}, t_{2m}, t_{3m}, t_{ma}$	t_{cc}	t^*	t^{**}	
$>+14$	$+5 \leq t_{wma} \leq +20$	$+8 \leq t_{cm} \leq +14$	$0 \leq t_{1m}, t_{2m}, t_{3m} \leq +8; t_{ma} \leq +4$	$-2 \leq t_{cc} \leq +3$	≤ -6	$\leq -12^a$	$\leq -18^a$

Notes:

— t_{om} : storage temperature of the other compartment

— t_{wma} : storage temperature of the wine storage compartment with a variation of 0.5K

— t_{cm} : storage temperature of the cellar compartment

— t_{1m}, t_{2m}, t_{3m} : storage temperatures of the fresh-food compartment

— t_{ma} : average storage temperature of the fresh-food compartment

— t_{cc} : instantaneous storage temperature of the chill compartment

— t^*, t^{**}, t^{***} : maximum temperatures of the frozen-food storage compartments

— storage temperature for the ice-making compartment and for the '0 star' compartment is below 0 °C

^{a)} for frost-free household refrigerating appliances during the defrost cycle, a temperature deviation of no more than 3 K during a period of 4 hours or 20% of the duration of the operating cycle, whichever is the shorter, is allowed.

2. CALCULATION OF THE EQUIVALENT VOLUME

The equivalent volume of a household refrigerating appliance is the sum of the equivalent volumes of all compartments. It is calculated in litres and rounded to the nearest integer as:

$$V_{eq} = \left[\sum_{c=1}^{c=n} V_c \times \frac{(25 - T_c)}{20} \times FF_c \right] \times CC \times BI$$

where:

- n is the number of compartments
- V_c is the storage volume of the compartment(s)
- T_c is the nominal temperature of the compartment(s) as set out in Table 2
- $\frac{(25 - T_c)}{20}$ is the thermodynamic factor as set in Table 5
- FF_c , CC and BI are volume correction factors as set out in Table 6

$$\frac{(25 - T_c)}{20}$$

The thermodynamic correction factor $\frac{20}{(25 - T_c)}$ is the temperature difference between the nominal temperature of a compartment T_c (defined in Table 2) and the ambient temperature under standard test conditions at $+25^\circ\text{C}$, expressed as a ratio of the same difference for a fresh-food compartment at $+5^\circ\text{C}$.

The thermodynamic factors for the compartments described in Annex I, points (g) to (n), are set out in Table 5.

Table 5: Thermodynamic factors for refrigerating appliance compartments

Compartment	Nominal temperature	$(25 - T_c)/20$
Other compartment	Design temperature	$\frac{(25 - T_c)}{20}$
Cellar compartment / Wine storage compartment	$+12^\circ\text{C}$	0.65
Fresh-food storage compartment	$+5^\circ\text{C}$	1.00
Chill compartment	0°C	1.25
Ice-making compartment and 0-star compartment	0°C	1.25
One-star compartment	-6°C	1.55
Two-star compartment	-12°C	1.85
Three-star compartment	-18°C	2.15
Food freezer compartment (four-star compartment)	-18°C	2.15

Notes:

- (i) for multi-use compartments, the thermodynamic factor is determined by the nominal temperature as given in Table 2 of the coldest compartment type capable of being set by the end-user and maintained continuously according to the manufacturer's instructions;
- (ii) for any two-star section (within a freezer) the thermodynamic factor is determined at $T_c = -12^\circ\text{C}$;
- (iii) for other compartments the thermodynamic factor is determined by the coldest design temperature capable of being set by the end-user and maintained continuously according to the manufacturer's instructions.

Table 6: Value of the correction factors

Correction factor	Value	Conditions
<i>FF</i> (frost-free)	1.2	For frost-free frozen-food storage compartments
	1	Otherwise
<i>CC</i> (climate class)	1.2	For T class (tropical) appliances
	1.1	For ST class (subtropical) appliances
	1	Otherwise
<i>BI</i> (built-in)	1.2	For built-in appliances under 58 cm in width
	1	Otherwise

Notes:

- (i) *FF* is the volume correction factor for frost-free compartments.
- (ii) *CC* is the volume correction factor for a given climate class. If a refrigerating appliance is classified in more than one climate class, the climate class with the highest correction factor is used for the calculation of the equivalent volume.
- (iii) *BI* is the volume correction factor for built-in appliances.

3. CALCULATION OF THE ENERGY EFFICIENCY INDEX

For the calculation of the Energy Efficiency Index (*EEI*) of a household refrigerating appliance model, the annual energy consumption of the household refrigerating appliance is compared to its standard annual energy consumption.

- (1) The Energy Efficiency Index (*EEI*) is calculated and rounded to the first decimal place, as:

$$EEI = \frac{AE_C}{SAE_C} \times 100$$

where:

- AE_C = annual energy consumption of the household refrigerating appliance
- SAE_C = standard annual energy consumption of the household refrigerating appliance.

- (2) The annual energy consumption (AE_C) is calculated in kWh/year and rounded to two decimal places, as:

$$AE_C = E_{24h} \times 365$$

where:

- E_{24h} is the energy consumption of the household refrigerating appliance in kWh/24h and rounded to three decimal places.

(3) The standard annual energy consumption (SAE_C) is calculated in kWh/year and rounded to two decimal places, as:

$$SAE_C = V_{eq} \times M + N + CH$$

where:

- V_{eq} is the equivalent volume of the household refrigerating appliance
- CH is equal to 50 kWh/year for household refrigerating appliances with a chill compartment with a storage volume of at least 15 litres
- the M and N values are given in Table 7 for each household refrigerating appliance category.

Table 7: M and N values by household refrigerating appliance category

Category	M	N
1	0.233	245
2	0.233	245
3	0.233	245
4	0.643	191
5	0.450	245
6	0.777	303
7	0.777	303
8	0.539	315
9	0.472	286
10	*	*

Note:

* for Category 10 household refrigerating appliances the M and N values depend on the temperature and star rating of the compartment with the lowest storage temperature capable of being set by the end-user and maintained continuously according to the manufacturer's instructions. When only an 'other compartment' as defined in Table 2 and Annex I, point (n), is present, the M and N values for Category 1 are used. Appliances with three-star compartments or food-freezer compartments are considered to be refrigerator-freezers.

ANNEX IX Energy efficiency classes

The energy efficiency class of a household refrigerating appliance shall be determined on the basis of its Energy Efficiency Index (*EEI*) as set out in Table 1 from [date to be inserted: one year after the entry into force of the Regulation] until 30 June 2014 and Table 2 from 1 July 2014.

The Energy Efficiency Index of a household refrigerating appliance shall be determined in accordance with point 3 of Annex VIII.

Table 1: Energy efficiency classes until 30 June 2014

Energy efficiency class	Energy Efficiency Index
A+++ (most efficient)	$EEI < 22$
A++	$22 \leq EEI < 33$
A+	$33 \leq EEI < 44$
A	$44 \leq EEI < 55$
B	$55 \leq EEI < 75$
C	$75 \leq EEI < 95$
D	$95 \leq EEI < 110$
E	$110 \leq EEI < 125$
F	$125 \leq EEI < 150$
G (least efficient)	$EEI \geq 150$

Table 2: Energy efficiency classes from 1 July 2014

Energy efficiency class	Energy Efficiency Index
A+++ (most efficient)	$EEI < 22$
A++	$22 \leq EEI < 33$
A+	$33 \leq EEI < 42$
A	$42 \leq EEI < 55$
B	$55 \leq EEI < 75$
C	$75 \leq EEI < 95$
D	$95 \leq EEI < 110$
E	$110 \leq EEI < 125$
F	$125 \leq EEI < 150$
G (least efficient)	$EEI \geq 150$