

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

of XXX

supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control, solar device and passive flue heat recovery device

(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 of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products¹, 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 that have a significant potential for energy savings but exhibit a wide disparity in performance levels with equivalent functionality.
- (2) The energy consumed by space heaters providing space heating and by combination heaters providing space and water heating accounts for a significant share of the total energy demand in the Union. Space heaters and combination heaters with equivalent functionality exhibit a wide disparity in terms of energy efficiency. The scope for reducing their energy consumption is significant and includes combining them with appropriate temperature controls, solar devices and passive flue heat recovery devices. Space heaters, combination heaters and packages of such heaters in combination with further products should therefore be covered by energy labelling requirements.
- (3) Harmonised provisions on indicating the energy efficiency of space heaters and combination heaters by labelling and standard product information should be laid down to provide incentives for manufacturers to improve the energy efficiency of these heaters, to encourage end-users to purchase energy-efficient products and to contribute to the functioning of the internal market.
- (4) As regards significant energy and cost savings for each type of heater, this Regulation should introduce a new single labelling scale from A⁺⁺ to G for the space heating function of boiler space heaters, cogeneration space heaters, heat pump space heaters,

¹ OJ L 153, 18.6.2010, p. 1.

boiler combination heaters and heat pump combination heaters. While classes A to G cover the various types of conventional boilers when not combined with cogeneration or renewable energy technologies, classes A⁺ and A⁺⁺ should promote the use of cogeneration and renewable energy sources from the beginning.

- (5) Furthermore, a new single A-G labelling scale should be introduced for the water heating function of boiler combination heaters and heat pump combination heaters, in line with Commission Delegated Regulation (EU) No .../... of XXX supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and packages of water heater and solar device [Number of the Regulation and OJ reference in footnote to be inserted before publication in the OJ]. Classes beyond A should not be introduced from the beginning for the water heating function, as the best stand-alone products cannot reach these classes. Only packages of heaters combined with solar devices can do so.
- (6) Further classes A⁺⁺⁺ and A⁺ should be added after two years to the space heating and water heating classes, respectively, to accelerate the market penetration of high-efficiency space heaters and combination heaters using renewable energy sources.
- (7) This Regulation should ensure that consumers get more accurate comparative information about the performance of heat pump heaters, based on a seasonal efficiency calculation and measurement method for three European climate zones. In order to specify whether a similar method should be developed for other heaters the Commission has given a mandate to the European standardisation bodies. European standardised heating seasons for boiler heaters, cogeneration heaters and solar heaters could be considered in the review of this Regulation.
- (8) The sound power level of a heater can be an important consideration for end-users. Information on sound power levels should be included on the labels of space heaters and combination heaters, to enable end-users to make an informed decision.
- (9) The combined effect of the provisions set out in this Regulation and Commission Regulation (EU) No .../... of ... implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters [Number of the Regulation and OJ reference in footnote to be inserted before publication in the OJ] is expected to result in estimated annual energy savings of around 1 900 PJ (about 45 Mtoe), corresponding to about 110 Mt CO₂ emissions, by 2020, compared to what would happen if no measures were taken.
- (10) The information provided on the label should be obtained through reliable, accurate and reproducible measurement and calculation procedures that take into account recognised state-of-the-art measurement and calculation methods including, where available, harmonised standards adopted by the European standardisation bodies under a request from the Commission, in accordance with the procedures laid down in the 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 services², for the purpose of establishing ecodesign requirements.

- (11) This Regulation should specify a uniform design and content of product labels for space heaters and combination heaters.
- (12) In addition, this Regulation should specify requirements for the product fiche and technical documentation for space heaters and combination heaters.
- (13) Moreover, this Regulation should specify requirements for the information to be provided for any form of distance selling of space heaters and combination heaters and in any advertisements and technical promotional material for such heaters.
- (14) In addition to the product labels and fiches for stand-alone space heaters and combination heaters laid down in this Regulation, package labels and fiches based on product fiches from suppliers should ensure the wide availability of and easy access to information on the energy performance of packages of heaters combined with solar devices, temperature controls and/or passive flue heat recovery devices. The most efficient class A⁺⁺⁺ may be reached by such a package from the beginning.
- (15) It is appropriate to provide for a review of the provisions of this Regulation taking into account technological progress,

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 for, space heaters and combination heaters with a rated heat output • 400 kW, packages of space heater • 400 kW, temperature control and solar device and packages of combination heater • 400 kW, temperature control, solar device and passive flue heat recovery device.
2. This Regulation shall not apply to:
 - (a) heaters specifically designed for using predominantly biomass fuels;
 - (b) heaters using solid fuels;
 - (c) heaters within the scope of Directive 2010/75/EU of the European Parliament and of the Council³;
 - (d) heaters generating heat only for the purpose of providing hot drinking or sanitary water;
 - (e) heaters for heating and distributing gaseous heat transfer media such as vapour or air;

² OJ L 204, 21.7.1998, p. 37.

³ OJ L 334, 17.12.2010, p. 17.

- (f) cogeneration space heaters with a maximum electrical capacity of 50 kW or above.

Article 2
Definitions

In addition to the definitions set out in Article 2 of Directive 2010/30/EC, the following definitions shall apply:

- (1) ‘heater’ means a space heater or combination heater;
- (2) ‘space heater’ means a device that
 - (a) provides heat to a water-based central heating system in order to reach and maintain at a desired level the indoor temperature of an enclosed space such as a building, a dwelling or a room, and
 - (b) is equipped with one or more heat generators;
- (3) ‘combination heater’ means a space heater that is designed to also provide heat to deliver hot drinking or sanitary water at given temperature levels, quantities and flow rates during given intervals, and is connected to an external supply of drinking or sanitary water;
- (4) ‘water-based central heating system’ means a system using water as a heat transfer medium to distribute centrally generated heat to heat emitters for the space heating of buildings, or parts thereof;
- (5) ‘heat generator’ means the part of a heater that generates the heat using one or more of the following processes:
 - (a) combustion of fossil fuels and/or biomass fuels;
 - (b) use of the Joule effect in electric resistance heating elements;
 - (c) capture of ambient heat from an air source, water source or ground source, and/or waste heat;
- (6) ‘rated heat output’ (*Prated*) means the declared heat output of a heater when providing space heating and, if applicable, water heating at standard rating conditions, expressed in kW; for heat pump space heaters and heat pump combination heaters the standard rating conditions for establishing the rated heat output are the reference design conditions, as set out in Annex VII, Table 11;
- (7) ‘standard rating conditions’ means the operating conditions of heaters under average climate conditions for establishing the rated heat output, seasonal space heating energy efficiency, water heating energy efficiency and sound power level;
- (8) ‘biomass’ means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry

and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste;

- (9) 'biomass fuel' means a gaseous or liquid fuel produced from biomass;
- (10) 'fossil fuel' means a gaseous or liquid fuel of fossil origin;
- (11) 'cogeneration space heater' means a space heater simultaneously generating heat and electricity in a single process; a cogeneration space heater may be equipped with one or more supplementary heaters using the Joule effect in electric resistance heating elements or the combustion of gaseous and/or liquid fuels;
- (12) 'temperature control' means equipment that interfaces with the end-user regarding the values and timing of the desired indoor temperature, and communicates relevant data, such as actual indoor and/or outdoor temperature(s), to an interface of the heater such as a central processing unit, thus helping to regulate the indoor temperature(s);
- (13) 'passive flue heat recovery device' means a device that captures latent heat from the exhaust gas of combination heaters;
- (14) 'solar device' means a solar-only system, a solar collector, a solar hot water storage tank or a pump in the collector loop, all placed on the market separately;
- (15) 'solar-only system' means a device that is equipped with one or more solar collectors and solar hot water storage tanks and possibly pumps in the collector loop and other parts; a solar-only system is placed on the market as one unit and is not equipped with any heat generator except possibly one or more back-up immersion heaters;
- (16) 'solar collector' means a device designed to absorb solar radiation and to transfer the heat energy so produced to a fluid passing through it;
- (17) 'hot water storage tank' means a vessel for storing hot water for water and/or space heating purposes, including any additives; a hot water storage tank may be equipped with a means for indirect heating of the water content by an external heat source or by district heating, but is not equipped with any heat generator except possibly one or more back-up immersion heaters; a solar hot water storage tank is a hot water storage tank;
- (18) 'back-up immersion heater' means a Joule effect electric resistance heater that is part of a hot water storage tank and generates heat only when the external heat source is disrupted (including during maintenance periods) or out of order, or that is part of a solar hot water storage tank, is located in the middle of the storage volume or above, and provides heat when the solar heat source is not sufficient to satisfy required comfort levels;
- (19) 'package of space heater, temperature control and solar device' means a package offered to the end-user containing one or more space heaters combined with one or more temperature controls and/or one or more solar devices, all placed on the market separately;

- (20) ‘package of combination heater, temperature control, solar device and passive flue heat recovery device’ means a package offered to the end-user containing one or more combination heaters combined with one or more temperature controls, and/or one or more solar devices and/or one or more passive flue heat recovery devices, all placed on the market separately;
- (21) ‘seasonal space heating energy efficiency’ (\bullet_s) means the ratio between the space heating demand for a designated heating season, supplied by a space heater, a combination heater, a package of space heater, temperature control and solar device or a package of combination heater, temperature control, solar device and passive flue heat recovery device, and the annual energy consumption required to meet this demand, expressed in %;
- (22) ‘water heating energy efficiency’ (\bullet_{wh}) means the ratio between the useful energy in the drinking or sanitary water provided by a combination heater or a package of combination heater, temperature control, solar device and passive flue heat recovery device and the energy required for its generation, expressed in %;
- (23) ‘sound power level’ (L_{WA}) means the A-weighted sound power level, indoors and/or outdoors, expressed in dB.

For Annexes II to VIII, additional definitions are set out in Annex I.

Article 3

Responsibilities of suppliers and timetable

1. From [date to be inserted: two years after this Regulation has entered into force] suppliers placing space heaters on the market and/or putting them into service shall ensure that:
 - (a) a printed label complying with the format and content of information set out in point 1.1 of Annex III is provided for each space heater conforming to the seasonal space heating energy efficiency classes set out in point 1 of Annex II, whereby: for heat pump space heaters, the printed label is provided at least in the packaging of the indoor unit; for space heaters intended for use in packages of space heater, temperature control and solar device, a second label complying with the format and content of information set out in point 3 of Annex III is provided for each space heater;
 - (b) a product fiche, as set out in point 1 of Annex IV, is provided for each space heater, whereby: for heat pump space heaters, the product fiche is provided at least for the indoor unit; for space heaters intended for use in packages of space heater, temperature control and solar device, a second fiche, as set out in point 6 of Annex IV, is provided;
 - (c) the technical documentation, as set out in point 1 of Annex V, is provided on request to the authorities of the Member States and to the Commission;
 - (d) any advertisement that concerns a specific space heater model and contains energy-related or price information includes a reference to the seasonal space

heating energy efficiency class under average climate conditions for that model;

- (e) any technical promotional material that concerns a specific space heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model;

From [date to be inserted: four years after this Regulation has entered into force] a printed label complying with the format and content of information set out in point 1.2 of Annex III shall be provided for each space heater conforming to the seasonal space heating energy efficiency classes set out in point 1 of Annex II, whereby: for heat pump space heaters, the printed label shall be provided at least in the packaging of the indoor unit.

2. From [date to be inserted: two years after this Regulation has entered into force] suppliers placing combination heaters on the market and/or putting them into service shall ensure that:

- (a) a printed label complying with the format and content of information set out in point 2.1 of Annex III is provided for each combination heater conforming to the seasonal space heating energy efficiency classes and water heating energy efficiency classes set out in points 1 and 2 of Annex II, whereby: for heat pump combination heaters, the printed label is provided at least in the packaging of the indoor unit; for combination heaters intended for use in packages of combination heater, temperature control, solar device and passive flue heat recovery device, a second label complying with the format and content of information set out in point 4 of Annex III is provided for each combination heater;
- (b) a product fiche, as set out in point 2 of Annex IV, is provided for each combination heater, whereby: for heat pump combination heaters, the product fiche is provided at least for the indoor unit; for combination heaters intended for use in packages of combination heater, temperature control, solar device and passive flue heat recovery device, a second fiche, as set out in point 7 of Annex IV, is provided;
- (c) the technical documentation, as set out in point 2 of Annex V, is provided on request to the authorities of the Member States and to the Commission;
- (d) any advertisement that concerns a specific combination heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;
- (e) any technical promotional material that concerns a specific combination heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;

From [date to be inserted: four years after this Regulation has entered into force] a printed label complying with the format and content of information set out in point 2.2 of Annex III shall be provided for each combination heater conforming to the seasonal space heating energy efficiency classes and water heating energy efficiency classes set out in points 1 and 2 of Annex II, whereby: for heat pump combination heaters, the printed label shall be provided at least in the packaging of the indoor unit.

3. From [date to be inserted: two years after this Regulation has entered into force] suppliers placing temperature controls on the market and/or putting them into service shall ensure that:
 - (a) a product fiche, as set out in point 3 of Annex IV, is provided;
 - (b) the technical documentation, as set out in point 3 of Annex V, is provided on request to the authorities of the Member States and to the Commission.
4. From [date to be inserted: two years after this Regulation has entered into force] suppliers placing solar devices on the market and/or putting them into service shall ensure that:
 - (a) a product fiche, as set out in point 4 of Annex IV, is provided;
 - (b) the technical documentation, as set out in point 4 of Annex V, is provided on request to the authorities of the Member States and to the Commission.
5. From [date to be inserted: two years after this Regulation has entered into force] suppliers placing passive flue heat recovery devices on the market and/or putting them into service shall ensure that:
 - (a) a product fiche, as set out in point 5 of Annex IV, is provided;
 - (b) the technical documentation, as set out in point 5 of Annex V is provided on request to the authorities of the Member States and to the Commission.

Article 4
Responsibilities of dealers

1. Dealers of space heaters shall ensure that:
 - (a) each space heater, at the point of sale, bears the label provided by suppliers in accordance with Article 3(1), as set out in point 1 of Annex III, on the outside of the front of the appliance, in such a way as to be clearly visible;
 - (b) space heaters offered for sale, hire or hire-purchase, where the end-user cannot be expected to see the space heater displayed, are marketed with the information provided by the suppliers in accordance with point 1 of Annex VI;
 - (c) any advertisement that concerns a specific space heater model and contains energy-related or price information includes a reference to the seasonal space

heating energy efficiency class under average climate conditions for that model;

- (d) any technical promotional material that concerns a specific space heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class under average climate conditions for that model.

2. Dealers of combination heaters shall ensure that:

- (a) each combination heater, at the point of sale, bears the label provided by suppliers in accordance with Article 3(2), as set out in point 2 of Annex III, on the outside of the front of the appliance, in such a way as to be clearly visible;
- (b) combination heaters offered for sale, hire or hire-purchase, where the end-user cannot be expected to see the combination heater displayed, are marketed with the information provided by the suppliers in accordance with point 2 of Annex VI;
- (c) any advertisement that concerns a specific combination heater model and contains energy-related or price information includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model;
- (d) any technical promotional material that concerns a specific combination heater model and describes its specific technical parameters includes a reference to the seasonal space heating energy efficiency class and water heating energy efficiency class under average climate conditions for that model.

3. Dealers of packages of space heater, temperature control and solar device shall ensure, based on the label and fiches provided by suppliers in accordance with Article 3(1), 3(3) and 3(4), that any offer for a specific package includes the seasonal space heating energy efficiency and the seasonal space heating energy efficiency class for that package under average, colder or warmer climate conditions, as applicable, by displaying with the package the label set out in point 3 of Annex III and providing the fiche set out in point 6 of Annex IV, duly filled in according to the characteristics of that package.

4. Dealers of packages of combination heater, temperature control, solar device and passive flue heat recovery device shall ensure, based on the label and fiches provided by suppliers in accordance with Article 3(2), 3(3), 3(4) and 3(5), that any offer for a specific package of combination heater, temperature control, solar device and passive flue heat recovery device includes the seasonal space heating energy efficiency, the water heating energy efficiency, the seasonal space heating energy efficiency class and the water heating energy efficiency class for that package under average, colder or warmer climate conditions, as applicable, by displaying with the package the label set out in point 4 of Annex III and providing the fiche set out in point 7 of Annex IV, duly filled in according to the characteristics of that package.

Article 5
Measurement and calculation methods

The information to be provided pursuant to Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement and calculation methods which take into account the recognised state-of-the-art measurement and calculation methods, as set out in Annex VII.

Article 6
Verification procedure for market surveillance purposes

Member States shall apply the procedure set out in Annex VIII when assessing the conformity of the declared seasonal space heating energy efficiency class, water heating energy efficiency class, seasonal space heating energy efficiency, water heating energy efficiency and sound power level of heaters.

Article 7
Review

The Commission shall review this Regulation in the light of technological progress no later than five years after its entry into force. The review shall in particular assess any significant changes in the market shares of various types of appliances, the feasibility and usefulness of indicating heater efficiency other than heat pump efficiency based on standardised heating seasons, and the appropriateness of the package fiches and labels set out in points 3 and 4 of Annex III and points 6 and 7 of Annex IV.

Article 8
Entry into force and application

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

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

Done at Brussels,

For the Commission
The President
José Manuel BARROSO

ANNEX I
Definitions applicable for Annexes II to VIII

For Annexes II to VIII the following definitions shall apply:

Definitions related to heaters:

- (1) 'boiler space heater', for the purposes of Figures 1 to 4 referred to as 'boiler', means a space heater that generates heat using the combustion of fossil fuels and/or biomass fuels, and/or using the Joule effect in electric resistance heating elements;
- (2) 'boiler combination heater', for the purposes of Figures 1 to 4 referred to as 'boiler', means a boiler space heater that is designed to also provide heat to deliver hot drinking or sanitary water at given temperature levels, quantities and flow rates during given intervals, and is connected to an external supply of drinking or sanitary water;
- (3) 'heat pump space heater', for the purposes of Figures 1 and 3 referred to as 'heat pump', means a space heater using ambient heat from an air source, water source or ground source, and/or waste heat for heat generation; a heat pump space heater may be equipped with one or more supplementary heaters using the Joule effect in electric resistance heating elements or the combustion of fossil and/or biomass fuels;
- (4) 'heat pump combination heater', for the purposes of Figures 1 and 3 referred to as 'heat pump', means a heat pump space heater that is designed to also provide heat to deliver hot drinking or sanitary water at given temperature levels, quantities and flow rates during given intervals, and is connected to an external supply of drinking or sanitary water;
- (5) 'supplementary heater' means a non-preferential heater that generates heat in cases where the heat demand is greater than the rated heat output of the preferential heater;
- (6) 'rated heat output of supplementary heater' (P_{sup}) means the declared heat output of the supplementary heater when providing space heating and, if applicable, water heating at standard rating conditions, expressed in kW; if the supplementary heater is a heat pump space heater or heat pump combination heater, the standard rating condition for establishing the rated heat output of supplementary heater is the outdoor temperature $T_j = + 7^\circ\text{C}$;
- (7) 'outdoor temperature' (T_j) means the dry bulb outdoor air temperature, expressed in degrees Celsius; the relative humidity may be indicated by a corresponding wet bulb temperature;
- (8) 'annual energy consumption' (Q_{HE}) means the annual energy consumption of a heater required for space heating to meet the reference annual heating demand for a designated heating season, expressed in kWh in terms of the final energy and/or in GJ in terms of GCV ;
- (9) 'standby mode' means a condition where the heater is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only the following functions, which may persist for an indefinite time:

reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display;

- (10) ‘standby mode power consumption’ (P_{SB}) means the power consumption of a heater in standby mode, expressed in kW;
- (11) ‘conversion coefficient’ (CC) means a coefficient reflecting the estimated 40% average EU generation efficiency referred to in Directive 2006/32/EC of the European Parliament and of the Council⁴; the value of the conversion coefficient is $CC = 2,5$;
- (12) ‘gross calorific value’ (GCV) means the total amount of heat released by a unit quantity of fuel when it is burned completely with oxygen and when the products of combustion are returned to ambient temperature; this quantity includes the condensation heat of any water vapour contained in the fuel and of the water vapour formed by the combustion of any hydrogen contained in the fuel;

Definitions related to boiler space heaters, boiler combination heaters and cogeneration space heaters:

- (13) ‘seasonal space heating energy efficiency in active mode’ (\bullet_{son}) means
- for fuel boiler space heaters and fuel boiler combination heaters, a weighted average of the useful efficiency at rated heat output and the useful efficiency at 30% of the rated heat output, expressed in %;
 - for electric boiler space heaters and electric boiler combination heaters, the useful efficiency at rated heat output, expressed in %;
 - for cogeneration space heaters not equipped with supplementary heaters, the useful efficiency at rated heat output, expressed in %;
 - for cogeneration space heaters equipped with supplementary heaters, a weighted average of the useful efficiency at rated heat output with supplementary heater disabled, and the useful efficiency at rated heat output with supplementary heater enabled, expressed in %;
- (14) ‘useful efficiency’ (\bullet) means the ratio of the useful heat output and the total energy input of a boiler space heater, boiler combination heater or cogeneration space heater, expressed in %, whereby the total energy input is expressed in terms of GCV and/or in terms of final energy multiplied by CC ;
- (15) ‘useful heat output’ (P) means the heat output of a boiler space heater, boiler combination heater or cogeneration space heater transmitted to the heat carrier, expressed in kW;
- (16) ‘electrical efficiency’ (\bullet_{el}) means the ratio of the electricity output and the total energy input of a cogeneration space heater, expressed in %, whereby the total

⁴ OJ L 114, 27.4.2006, p. 64.

energy input is expressed in terms of *GCV* and/or in terms of final energy multiplied by *CC*;

- (17) ‘ignition burner power consumption’ (P_{ign}) means the power consumption of a burner intended to ignite the main burner, expressed in W in terms of *GCV*;
- (18) ‘condensing boiler’ means a boiler space heater or boiler combination heater in which, under normal operating conditions and at given operating water temperatures, the water vapour in the combustion products is partially condensed, in order to make use of the latent heat of this water vapour for heating purposes;
- (19) ‘auxiliary electricity consumption’ means the annual electricity required for the designated operation of a boiler space heater, boiler combination heater or cogeneration space heater, calculated from the electric power consumption at full load (el_{max}), at part load (el_{min}), in standby mode and default operating hours at each mode, expressed in kWh in terms of final energy;
- (20) ‘standby heat loss’ (P_{stby}) means the heat loss of a boiler space heater, boiler combination heater or cogeneration space heater in operating modes without heat demand, expressed in kW;

Definitions related to heat pump space heaters and heat pump combination heaters:

- (21) ‘rated coefficient of performance’ (COP_{rated}) or ‘rated primary energy ratio’ (PER_{rated}) means the declared heat capacity, expressed in kW, divided by the energy input, expressed in kW in terms of *GCV* and/or in kW in terms of final energy multiplied by *CC*, for heating provided at standard rating conditions;
- (22) ‘reference design conditions’ means the combination of the reference design temperature, the maximum bivalent temperature and the maximum operation limit temperature, as set out in Annex VII, Table 11;
- (23) ‘reference design temperature’ ($T_{designh}$) means the outdoor temperature, expressed in degrees Celsius, as set out in Annex VII, Table 11, at which the part load ratio is equal to 1;
- (24) ‘part load ratio’ ($pl(T_j)$) means the outdoor temperature minus 16°C divided by the reference design temperature minus 16°C;
- (25) ‘heating season’ means a set of operating conditions for average, colder and warmer climate conditions, describing per bin the combination of outdoor temperatures and the number of hours these temperatures occur per season;
- (26) ‘bin’ (bin_j) means a combination of an outdoor temperature and bin hours, as set out in Annex VII, Table 13;
- (27) ‘bin hours’ (H_j) means the hours per season, expressed in hours per year, at which an outdoor temperature occurs for each bin, as set out in Annex VII, Table 13;
- (28) ‘part load for heating’ ($Ph(T_j)$) means the heating load at a specific outdoor temperature, calculated as the design load multiplied by the part load ratio and expressed in kW;

- (29) ‘seasonal coefficient of performance’ ($SCOP$) or ‘seasonal primary energy ratio’ ($SPER$) means the overall coefficient of performance of a heat pump space heater or heat pump combination heater using electricity or the overall primary energy ratio of a heat pump space heater or heat pump combination heater using fuels, representative of the designated heating season, calculated as the reference annual heating demand divided by the annual energy consumption;
- (30) ‘reference annual heating demand’ (Q_H) means the reference heating demand for a designated heating season, to be used as the basis for calculating $SCOP$ or $SPER$ and calculated as the product of the design load for heating and the annual equivalent active mode hours, expressed in kWh;
- (31) ‘annual equivalent active mode hours’ (H_{HE}) means the assumed annual number of hours a heat pump space heater or heat pump combination heater has to provide the design load for heating to satisfy the reference annual heating demand, expressed in h;
- (32) ‘active mode coefficient of performance’ ($SCOP_{on}$) or ‘active mode primary energy ratio’ ($SPER_{on}$) means the average coefficient of performance of the heat pump space heater or heat pump combination heater using electricity in active mode or the average primary energy ratio of the heat pump space heater or heat pump combination heater using fuels in active mode for the designated heating season;
- (33) ‘supplementary capacity for heating’ ($sup(T_j)$) means the rated heat output P_{sup} of a supplementary heater that supplements the declared capacity for heating to meet the part load for heating, if the declared capacity for heating is less than the part load for heating, expressed in kW;
- (34) ‘bin-specific coefficient of performance’ ($COP_{bin}(T_j)$) or ‘bin-specific primary energy ratio’ ($PER_{bin}(T_j)$) means the coefficient of performance of the heat pump space heater or heat pump combination heater using electricity or primary energy ratio of the heat pump space heater or heat pump combination heater using fuel specific for every bin in a season, derived from the part load for heating, declared capacity for heating and declared coefficient of performance for specified bins and calculated for other bins by interpolation or extrapolation, corrected where necessary by the degradation coefficient;
- (35) ‘declared capacity for heating’ ($P_{dh}(T_j)$) means the heating capacity a heat pump space heater or heat pump combination heater is able to deliver, for an outdoor temperature, expressed in kW;
- (36) ‘capacity control’ means the ability of a heat pump space heater or heat pump combination heater to change its capacity by changing the volumetric flow rate of at least one of the fluids needed to operate the refrigeration cycle, to be indicated as ‘fixed’ if the volumetric flow rate cannot be changed or ‘variable’ if the volumetric flow rate is changed or varied in series of two or more steps;
- (37) ‘design load for heating’ ($P_{designh}$) means the rated heat output (P_{rated}) of a heat pump space heater or heat pump combination heater at the reference design temperature, whereby the design load for heating is equal to the part load for heating with outdoor temperature equal to reference design temperature, expressed in kW;

- (38) ‘declared coefficient of performance’ ($COP_d(T_j)$) or ‘declared primary energy ratio’ ($PER_d(T_j)$) means the coefficient of performance or primary energy ratio at a limited number of specified bins;
- (39) ‘bivalent temperature’ (T_{biv}) means the outdoor temperature declared by the supplier for heating at which the declared capacity for heating equals the part load for heating and below which the declared capacity for heating requires supplementary capacity for heating to meet the part load for heating, expressed in degrees Celsius;
- (40) ‘operation limit temperature’ (TOL) means the outdoor temperature declared by the supplier for heating, below which the air-to-water heat pump space heater or heat pump combination heater will not be able to deliver any heating capacity and the declared capacity for heating is equal to zero, expressed in degrees Celsius;
- (41) ‘heating water operation limit temperature’ ($WTOL$) means the outlet water temperature declared by the supplier for heating, above which the heat pump space heater or heat pump combination heater will not be able to deliver any heating capacity and the declared capacity heating is equal to zero, expressed in degrees Celsius;
- (42) ‘cycling interval capacity for heating’ (P_{cyc}) means the integrated heating capacity over the cycling test interval for heating, expressed in kW;
- (43) ‘cycling interval efficiency’ (COP_{cyc} or PER_{cyc}) means the average coefficient of performance or average primary energy ratio over the cycling test interval, calculated as the integrated heating capacity over the interval, expressed in kWh, divided by the integrated energy input over that same interval, expressed in kWh in terms of GCV and/or in kWh in terms of final energy multiplied by CC ;
- (44) ‘degradation coefficient’ (C_{dh}) means the measure of efficiency loss due to cycling of a heat pump space heater or heat pump combination heater; if C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$;
- (45) ‘active mode’ means the condition corresponding to the hours with a heating load for the enclosed space and activated heating function; this condition may involve cycling of the heat pump space heater or heat pump combination heater to reach or maintain a required indoor air temperature;
- (46) ‘off mode’ means a condition in which the heat pump space heater or heat pump combination heater is connected to the mains power source and is not providing any function, including conditions providing only an indication of off mode condition and conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2004/108/EC of the European Parliament and of the Council⁵;
- (47) ‘thermostat-off mode’ means the condition corresponding to the hours with no heating load and activated heating function, whereby the heating function is switched on but the heat pump space heater or heat pump combination heater is not operational; cycling in active mode is not considered as thermostat-off mode;

⁵ OJ L 390, 31.12.2004, p.24.

- (48) ‘crankcase heater mode’ means the condition in which a heating device is activated to avoid the refrigerant migrating to the compressor so as to limit the refrigerant concentration in oil when the compressor is started;
- (49) ‘off mode power consumption’ (P_{OFF}) means the power consumption of a heat pump space heater or heat pump combination heater in off mode, expressed in kW;
- (50) ‘thermostat-off mode power consumption’ (P_{TO}) means the power consumption of the heat pump space heater or heat pump combination heater while in thermostat-off mode, expressed in kW;
- (51) ‘crankcase heater mode power consumption’ (P_{CK}) means the power consumption of the heat pump space heater or heat pump combination heater while in crankcase heater mode, expressed in kW;
- (52) ‘low-temperature heat pump’ means a heat pump space heater that is specifically designed for low-temperature application, and that cannot deliver heating water with an outlet temperature of 52 °C at an inlet dry (wet) bulb temperature of - 7 °C (- 8 °C) in the reference design conditions for average climate;
- (53) ‘low-temperature application’ means an application where the heat pump space heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 35 °C;
- (54) ‘medium-temperature application’ means an application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C;

Definitions related to water heating in combination heaters:

- (55) ‘load profile’ means a given sequence of water draw-offs, as specified in Annex VII, Table 16;
- (56) ‘water draw-off’ means a given combination of useful water flow rate, useful water temperature, useful energy content and peak temperature, as specified in Annex VII, Table 16;
- (57) ‘useful water flow rate’ (f) means the minimum flow rate, expressed in litres per minute, for which hot water is contributing to the reference energy, as specified in Annex VII, Table 16;
- (58) ‘useful water temperature’ (T_m) means the water temperature, expressed in degrees Celsius, at which hot water starts contributing to the reference energy, as specified in Annex VII, Table 16;
- (59) ‘useful energy content’ (Q_{tap}) means the energy content of hot water, expressed in kWh, provided at a temperature equal to, or above, the useful water temperature, and at water flow rates equal to, or above, the useful water flow rate, as specified in Annex VII, Table 16;

- (60) ‘energy content of hot water’ means the product of the specific heat capacity of water, the average temperature difference between the cold water input and hot water output, and the total mass of the hot water delivered;
- (61) ‘peak temperature’ (T_p) means the minimum water temperature, expressed in degrees Celsius, to be achieved during water draw-off, as specified in Annex VII, Table 16;
- (62) ‘reference energy’ (Q_{ref}) means the sum of the useful energy content of water draw-offs, expressed in kWh, in a particular load profile, as specified in Annex VII, Table 16;
- (63) ‘maximum load profile’ means the load profile with the greatest reference energy that a water heater is able to provide while fulfilling the temperature and flow rate conditions of that load profile;
- (64) ‘declared load profile’ means the load profile applied when determining water heating energy efficiency;
- (65) ‘daily electricity consumption’ (Q_{elec}) means the consumption of electricity for water heating over 24 consecutive hours under the declared load profile, expressed in kWh in terms of final energy;
- (66) ‘daily fuel consumption’ (Q_{fuel}) means the consumption of fuels for water heating over 24 consecutive hours under the declared load profile, expressed in kWh in terms of *GCV* and, for the purposes of point 5(f) in Annex VII, expressed in GJ in terms of *GCV*;
- (67) ‘annual electricity consumption’ (*AEC*) means the annual electricity consumption of a combination heater for water heating under the declared load profile and under given climate conditions, expressed in kWh in terms of final energy;
- (68) ‘annual fuel consumption’ (*AFC*) means the annual fossil fuel and/or biomass fuel consumption of a combination heater for water heating under the declared load profile and under given climate conditions, expressed in GJ in terms of *GCV*;

Definitions related to solar devices:

- (69) ‘annual non-solar heat contribution’ (Q_{nonsol}), means the annual contribution of electricity (expressed in kWh in terms of primary energy) and/or fuels (expressed in kWh in terms of *GCV*) to the useful heat output of a package of combination heater, temperature control, solar device and passive flue heat recovery device, taking into account the annual amount of heat captured by the solar collector and the heat losses of the solar hot water storage tank;
- (70) ‘collector aperture area’ (A_{sol}), for the purposes of Figures 1 to 4 referred to as ‘collector size’, means the maximum projected area through which unconcentrated solar radiation enters the collector, expressed in m²;
- (71) ‘collector efficiency’ (\bullet_{col}) means the efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m², expressed in %;

- (72) ‘standing loss’ (S) means the heating power dissipated from a solar hot water storage tank at given water and ambient temperatures, expressed in W;
- (73) ‘storage volume’ (V), for the purposes of Figures 1 to 4 referred to as ‘tank volume’, means the rated volume of a solar hot water storage tank, expressed in litres or m³;
- (74) ‘auxiliary electricity consumption’ (Q_{aux}), for the purpose of Figure 5 referred to as ‘auxiliary electricity’, means the annual electricity consumption of a solar-only system that is due to the pump power consumption and the standby power consumption, expressed in kWh in terms of final energy;
- (75) ‘pump power consumption’ (sol_{pump}) means the rated electrical power consumption of the pump in the collector loop of a solar-only system, expressed in W;
- (76) ‘standby power consumption’ ($sol_{standby}$) means the rated electrical power consumption of a solar-only system when the pump and the heat generator are inactive, expressed in W;

Other definitions:

- (77) ‘average climate conditions’, ‘colder climate conditions’ and ‘warmer climate conditions’ mean the temperature and global solar irradiance conditions characteristic for the cities of Strasbourg, Helsinki and Athens, respectively;
- (78) ‘model identifier’ means the code, usually alphanumeric, which distinguishes a specific space heater, combination heater, temperature control, solar device or passive flue heat recovery device model from other models with the same trade mark or supplier’s name;

ANNEX II

Energy efficiency classes

1. Seasonal space heating energy efficiency classes

The seasonal space heating energy efficiency classes of a heater, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application, shall be determined on the basis of its seasonal space heating energy efficiency as set out in Table 1.

The seasonal space heating energy efficiency classes of a low-temperature heat pump and a heat pump space heater for low-temperature application shall be determined on the basis of its seasonal space heating energy efficiency as set out in Table 2.

The seasonal space heating energy efficiency of a heater under average climate conditions shall be calculated in accordance with points 3 and 4 of Annex VII, for heat pump space heaters, heat pump combination heaters and low-temperature heat pumps under average climate conditions.

Table 1: Seasonal space heating energy efficiency classes of heaters, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency η_s in %
A ⁺⁺⁺	$\eta_s \geq 150$
A ⁺⁺	$125 \leq \eta_s < 150$
A ⁺	$98 \leq \eta_s < 125$
A	$90 \leq \eta_s < 98$
B	$82 \leq \eta_s < 90$
C	$75 \leq \eta_s < 82$
D	$36 \leq \eta_s < 75$
E	$34 \leq \eta_s < 36$
F	$30 \leq \eta_s < 34$
G	$\eta_s < 30$

Table 2: Seasonal space heating energy efficiency classes of low-temperature heat pumps and heat pump space heaters for low-temperature application

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency η_s in %
A ⁺⁺⁺	$\eta_s \geq 175$
A ⁺⁺	$150 \leq \eta_s < 175$
A ⁺	$123 \leq \eta_s < 150$
A	$115 \leq \eta_s < 123$
B	$107 \leq \eta_s < 115$
C	$100 \leq \eta_s < 107$
D	$61 \leq \eta_s < 100$
E	$59 \leq \eta_s < 61$
F	$55 \leq \eta_s < 59$
G	$\eta_s < 55$

2. Water heating energy efficiency classes

The water heating energy efficiency classes of a combination heater shall be determined on the basis of its water heating energy efficiency as set out in Table 3.

The water heating energy efficiency of a combination heater shall be calculated in accordance with point 5 of Annex VII.

Table 3: Water heating energy efficiency classes of combination heaters, categorised by declared load profiles, η_{wh} in %

	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
A ⁺⁺⁺	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 69$	$\eta_{wh} \geq 90$	$\eta_{wh} \geq 163$	$\eta_{wh} \geq 188$	$\eta_{wh} \geq 200$	$\eta_{wh} \geq 213$	$\eta_{wh} \geq 225$	$\eta_{wh} \geq 238$
A ⁺⁺	$53 \leq \eta_{wh} < 62$	$53 \leq \eta_{wh} < 62$	$61 \leq \eta_{wh} < 69$	$72 \leq \eta_{wh} < 90$	$130 \leq \eta_{wh} < 163$	$150 \leq \eta_{wh} < 188$	$160 \leq \eta_{wh} < 200$	$170 \leq \eta_{wh} < 213$	$180 \leq \eta_{wh} < 225$	$190 \leq \eta_{wh} < 238$
A ⁺	$44 \leq \eta_{wh} < 53$	$44 \leq \eta_{wh} < 53$	$53 \leq \eta_{wh} < 61$	$55 \leq \eta_{wh} < 72$	$100 \leq \eta_{wh} < 130$	$115 \leq \eta_{wh} < 150$	$123 \leq \eta_{wh} < 160$	$131 \leq \eta_{wh} < 170$	$138 \leq \eta_{wh} < 180$	$146 \leq \eta_{wh} < 190$
A	$35 \leq \eta_{wh} < 44$	$35 \leq \eta_{wh} < 44$	$38 \leq \eta_{wh} < 53$	$38 \leq \eta_{wh} < 55$	$65 \leq \eta_{wh} < 100$	$75 \leq \eta_{wh} < 115$	$80 \leq \eta_{wh} < 123$	$85 \leq \eta_{wh} < 131$	$90 \leq \eta_{wh} < 138$	$95 \leq \eta_{wh} < 146$
B	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$35 \leq \eta_{wh} < 38$	$35 \leq \eta_{wh} < 38$	$45 \leq \eta_{wh} < 65$	$50 \leq \eta_{wh} < 75$	$55 \leq \eta_{wh} < 80$	$60 \leq \eta_{wh} < 85$	$64 \leq \eta_{wh} < 90$	$64 \leq \eta_{wh} < 95$
C	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$36 \leq \eta_{wh} < 45$	$37 \leq \eta_{wh} < 50$	$38 \leq \eta_{wh} < 55$	$40 \leq \eta_{wh} < 60$	$40 \leq \eta_{wh} < 64$	$40 \leq \eta_{wh} < 64$
D	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$33 \leq \eta_{wh} < 36$	$34 \leq \eta_{wh} < 37$	$35 \leq \eta_{wh} < 38$	$36 \leq \eta_{wh} < 40$	$36 \leq \eta_{wh} < 40$	$36 \leq \eta_{wh} < 40$
E	$22 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$30 \leq \eta_{wh} < 33$	$30 \leq \eta_{wh} < 34$	$30 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 36$	$32 \leq \eta_{wh} < 36$	$32 \leq \eta_{wh} < 36$
F	$19 \leq \eta_{wh} < 22$	$20 \leq \eta_{wh} < 23$	$23 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$27 \leq \eta_{wh} < 30$	$28 \leq \eta_{wh} < 32$	$28 \leq \eta_{wh} < 32$	$28 \leq \eta_{wh} < 32$
G	$\eta_{wh} < 19$	$\eta_{wh} < 20$	$\eta_{wh} < 23$	$\eta_{wh} < 23$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 27$	$\eta_{wh} < 28$	$\eta_{wh} < 28$	$\eta_{wh} < 28$

3. Energy efficiency classes of solar hot water storage tanks, if (part of) a solar device

The energy efficiency class of a solar hot water storage tank, if (part of) a solar device, shall be determined on the basis of its standing loss as set out in Table 4.

Table 4: Energy efficiency classes of solar hot water storage tanks, if (part of) a solar device

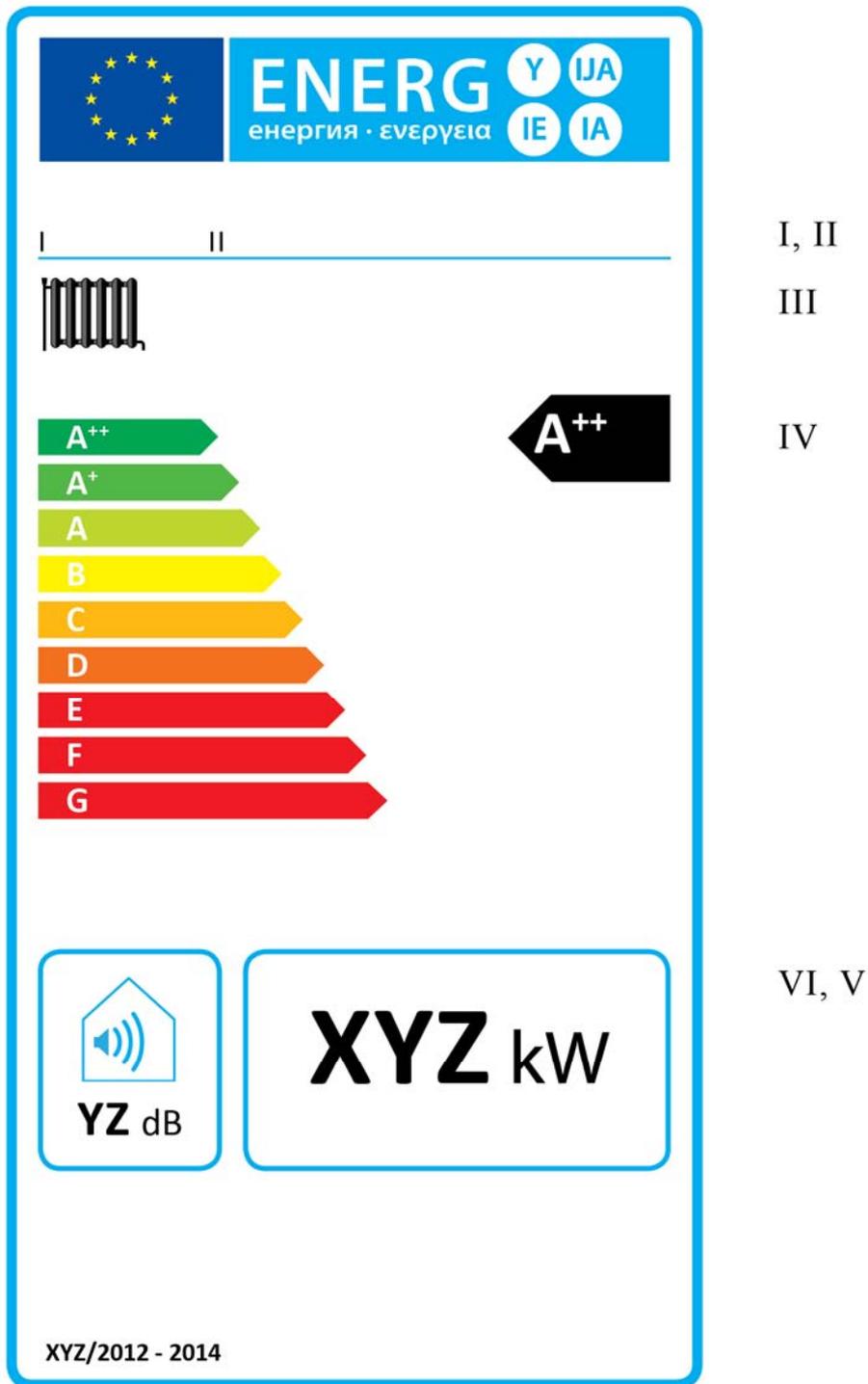
Energy efficiency class	Standing loss S in Watts, with storage volume V in litres
A+	$S < 5,5 + 3,16 \cdot V^{0,4}$
A	$5,5 + 3,16 \cdot V^{0,4} \cdot S < 8,5 + 4,25 \cdot V^{0,4}$
B	$8,5 + 4,25 \cdot V^{0,4} \cdot S < 12 + 5,93 \cdot V^{0,4}$
C	$12 + 5,93 \cdot V^{0,4} \cdot S < 16,66 + 8,33 \cdot V^{0,4}$
D	$16,66 + 8,33 \cdot V^{0,4} \cdot S < 21 + 10,33 \cdot V^{0,4}$
E	$21 + 10,33 \cdot V^{0,4} \cdot S < 26 + 13,66 \cdot V^{0,4}$
F	$26 + 13,66 \cdot V^{0,4} \cdot S < 31 + 16,66 \cdot V^{0,4}$
G	$S > 31 + 16,66 \cdot V^{0,4}$

ANNEX III
The labels

1. Space heaters

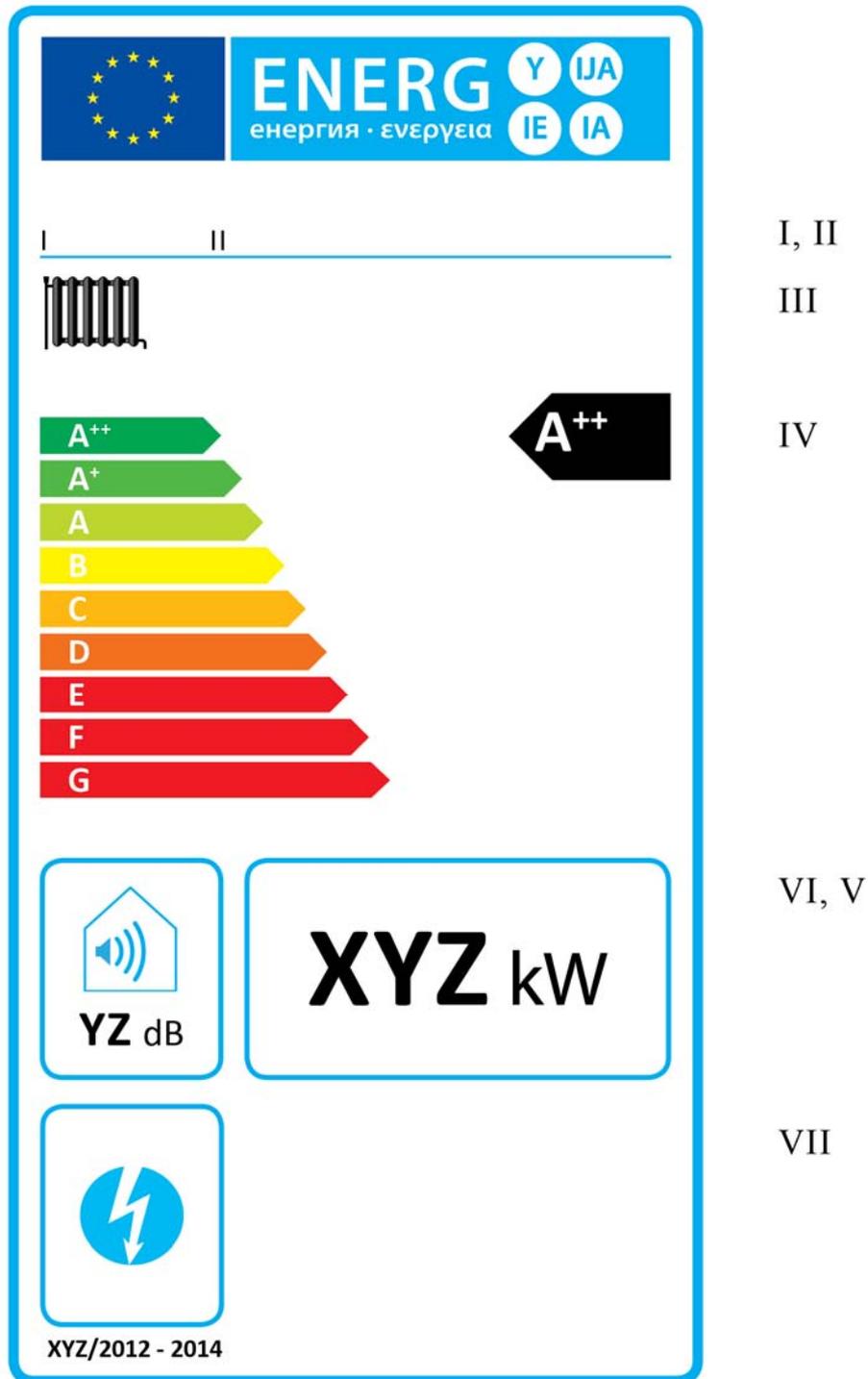
1.1. Label 1

1.1.1. Boiler space heaters in seasonal space heating energy efficiency classes A⁺⁺ to G



- (a) The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;
 - III. the space heating function;
 - IV. the seasonal space heating energy efficiency class, determined in accordance with point 1 of Annex II; the head of the arrow containing the seasonal space heating energy efficiency class of the boiler space heater shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. the rated heat output in kW, rounded to the nearest integer;
 - VI. the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer.
- (b) The design aspects of the label for boiler space heaters shall be in accordance with point 5 of this Annex.

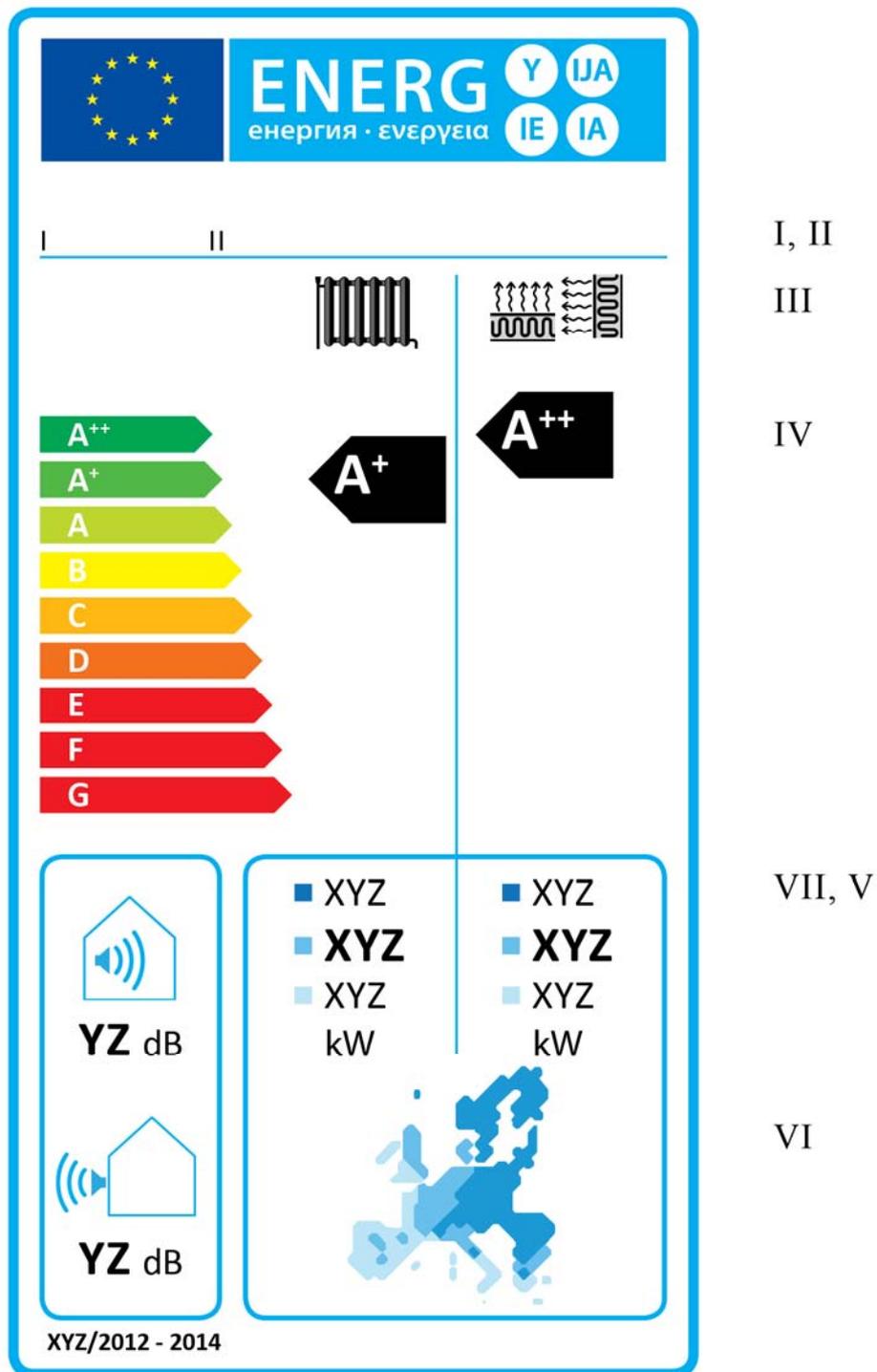
1.1.2. Cogeneration space heaters in seasonal space heating energy efficiency classes A⁺⁺ to G



- (a) The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;

- III. the space heating function;
 - IV. the seasonal space heating energy efficiency class, determined in accordance with point 1 of Annex II; the head of the arrow containing the seasonal space heating energy efficiency class of the cogeneration space heater shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer;
 - VI. the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer;
 - VII. the additional electricity generation function.
- (b) The design aspects of the label for cogeneration space heaters shall be in accordance with point 6 of this Annex.

1.1.3. Heat pump space heaters, except low-temperature heat pumps, in seasonal space heating energy efficiency classes A⁺⁺ to G



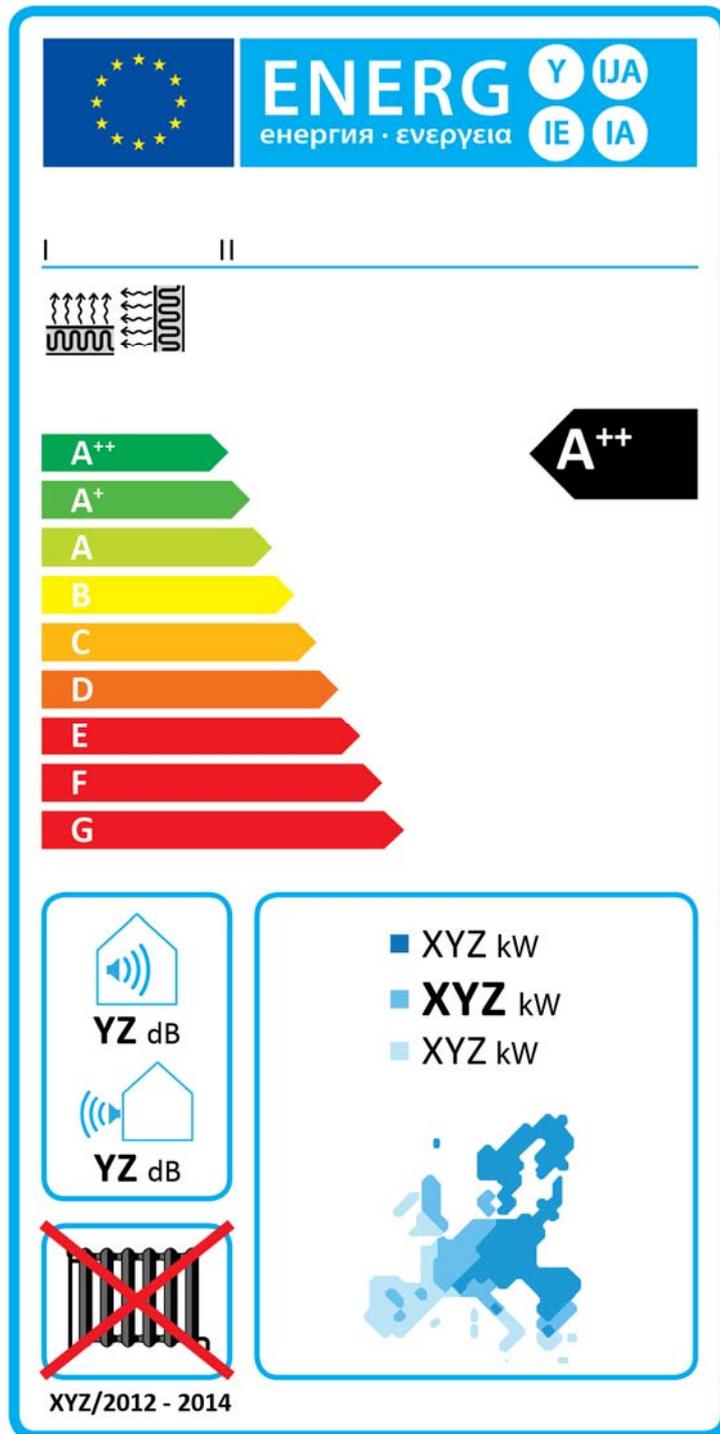
(a) The following information shall be included in the label:

- I. supplier's name or trade mark;
- II. supplier's model identifier;

- III. the space heating function for medium- and low-temperature application, respectively;
 - IV. the seasonal space heating energy efficiency class under average climate conditions for medium- and low-temperature application, respectively, determined in accordance with point 1 of Annex II; the head of the arrow containing the seasonal space heating energy efficiency class of the heat pump space heater for medium- and low-temperature application, respectively, shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. the rated heat output, including the rated heat output of any supplementary heater, in kW, under average, colder and warmer climate conditions for medium- and low-temperature application, respectively, rounded to the nearest integer;
 - VI. European temperature map displaying three indicative temperature zones;
 - VII. the sound power level L_{WA} , indoors (if applicable) and outdoors, in dB, rounded to the nearest integer.
- (b) The design aspects of the label for heat pump space heaters shall be in accordance with point 7 of this Annex. By way of exception, where a model has been granted an 'EU Ecolabel' under Regulation (EC) No 66/2010 of the European Parliament and of the Council⁶, a copy of the EU Ecolabel may be added.

⁶ OJ L 27, 30.1.2010, p. 1.

1.1.4. Low-temperature heat pumps in seasonal space heating energy efficiency classes A⁺⁺ to G



I, II

III

IV

VII, V

VIII, VI

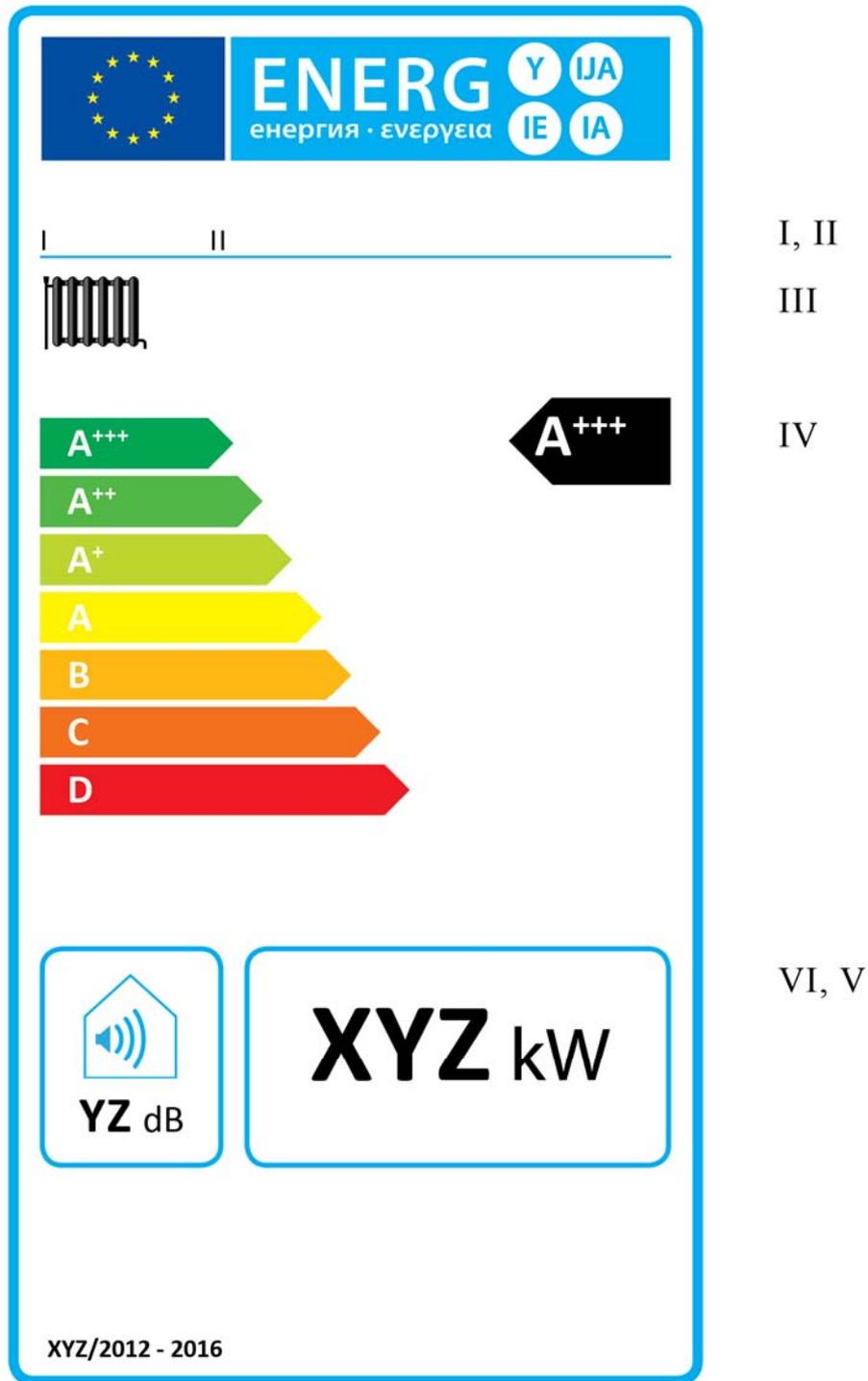
(a) The following information shall be included in the label:

- I. supplier's name or trade mark;
- II. supplier's model identifier;

- III. the space heating function for low-temperature application;
 - IV. the seasonal space heating energy efficiency class under average climate conditions, determined in accordance with point 1 of Annex II; the head of the arrow containing the seasonal space heating energy efficiency class of the low-temperature heat pump shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. the rated heat output, including the rated heat output of any supplementary heater, in kW, under average, colder and warmer climate conditions, rounded to the nearest integer;
 - VI. European temperature map displaying three indicative temperature zones;
 - VII. the sound power level L_{WA} , indoors (if applicable) and outdoors, in dB, rounded to the nearest integer;
 - VIII. an indication that the heat pump space heater is not suitable for medium-temperature application.
- (b) The design aspects of the label for low-temperature heat pumps shall be in accordance with point 8 of this Annex. By way of exception, where a model has been granted an 'EU Ecolabel' under Regulation (EC) No 66/2010 of the European Parliament and of the Council, a copy of the EU Ecolabel may be added.

1.2. Label 2

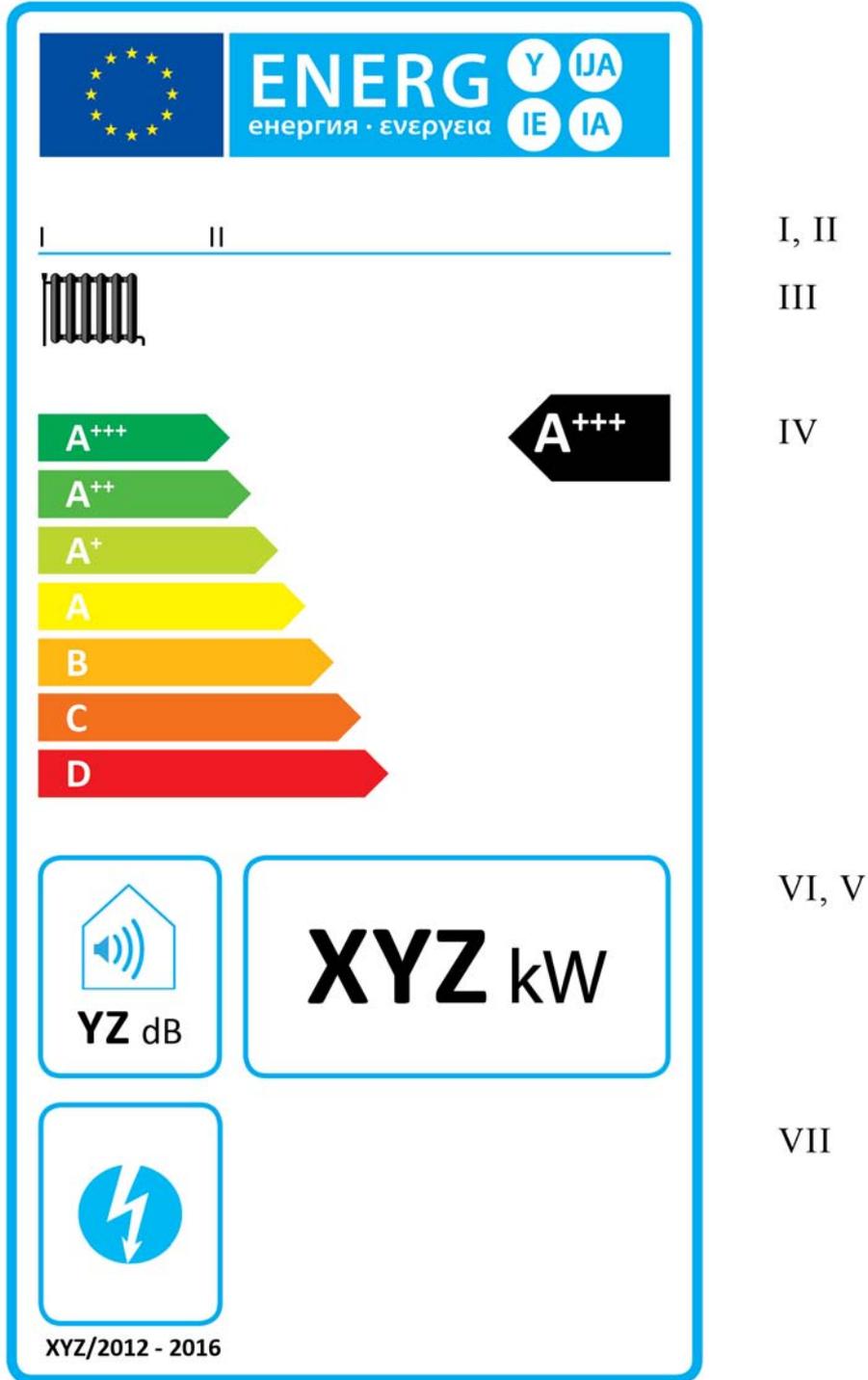
1.2.1. Boiler space heaters in seasonal space heating energy efficiency classes A⁺⁺⁺ to D



(a) The information listed in point 1.1.1(a) of this Annex shall be included in the label.

(b) The design aspects of the label for boiler space heaters shall be in accordance with point 5 of this Annex.

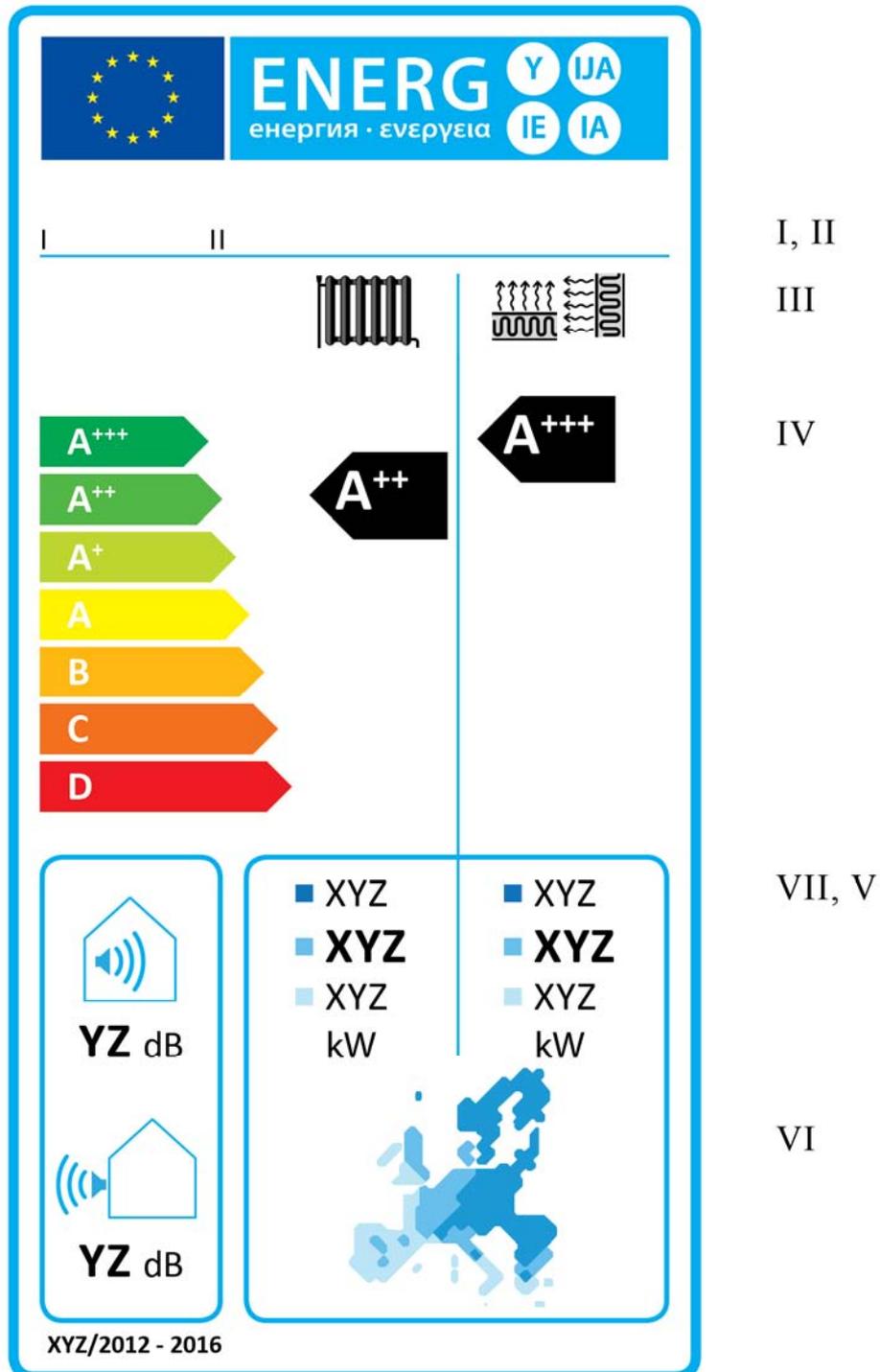
1.2.2. Cogeneration space heaters in seasonal space heating energy efficiency classes A⁺⁺⁺ to D



(a) The information listed in point 1.1.2(a) of this Annex shall be included in the label.

(b) The design aspects of the label for cogeneration space heaters shall be in accordance with point 6 of this Annex.

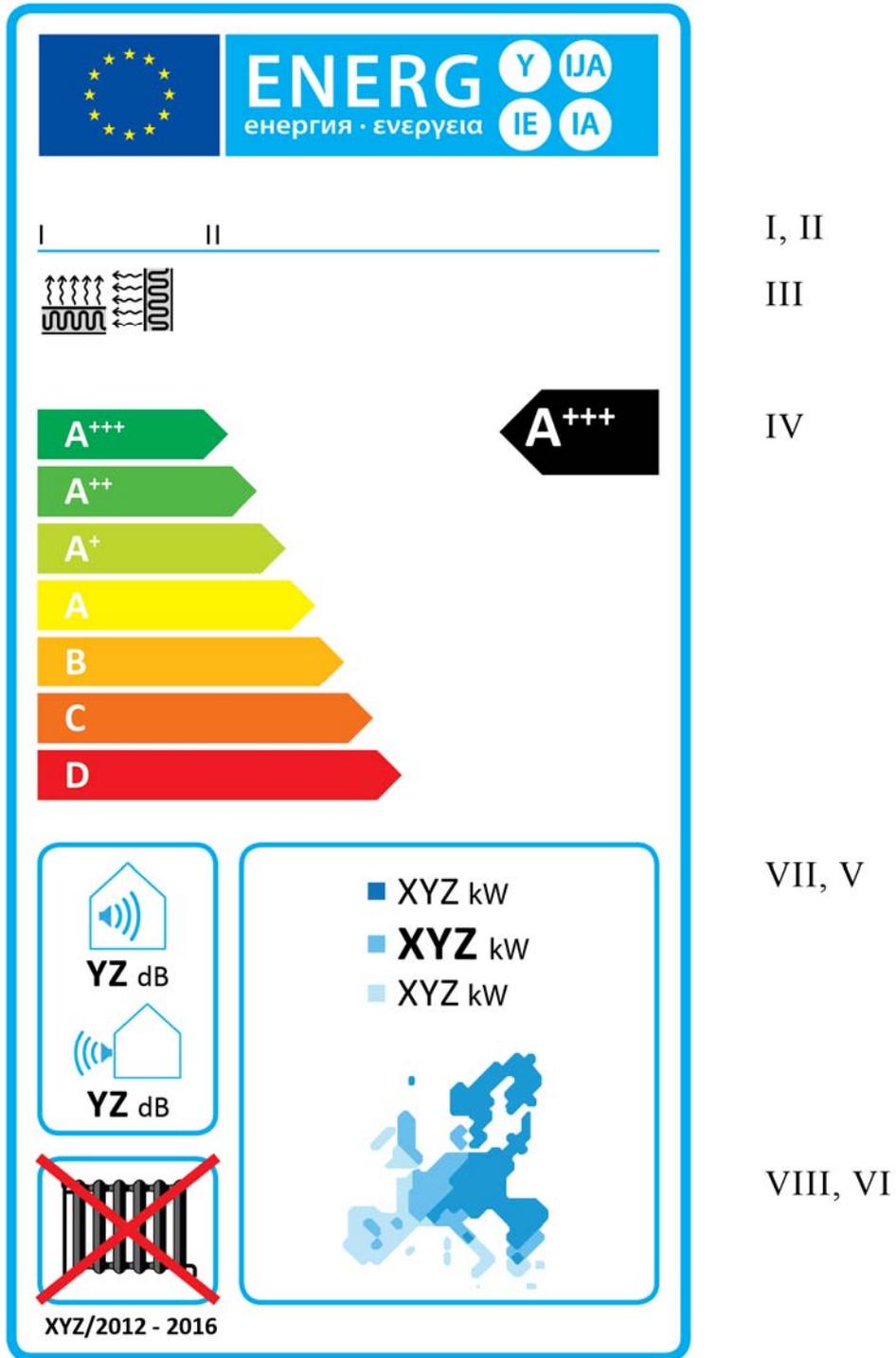
1.2.3. Heat pump space heaters, except low-temperature heat pumps, in seasonal space heating energy efficiency classes A⁺⁺⁺ to D



(a) The information listed in point 1.1.3(a) of this Annex shall be included in the label.

(b) The design aspects of the label for heat pump space heaters shall be in accordance with point 7 of this Annex.

1.2.4. Low-temperature heat pumps in seasonal space heating energy efficiency classes A⁺⁺⁺ to D



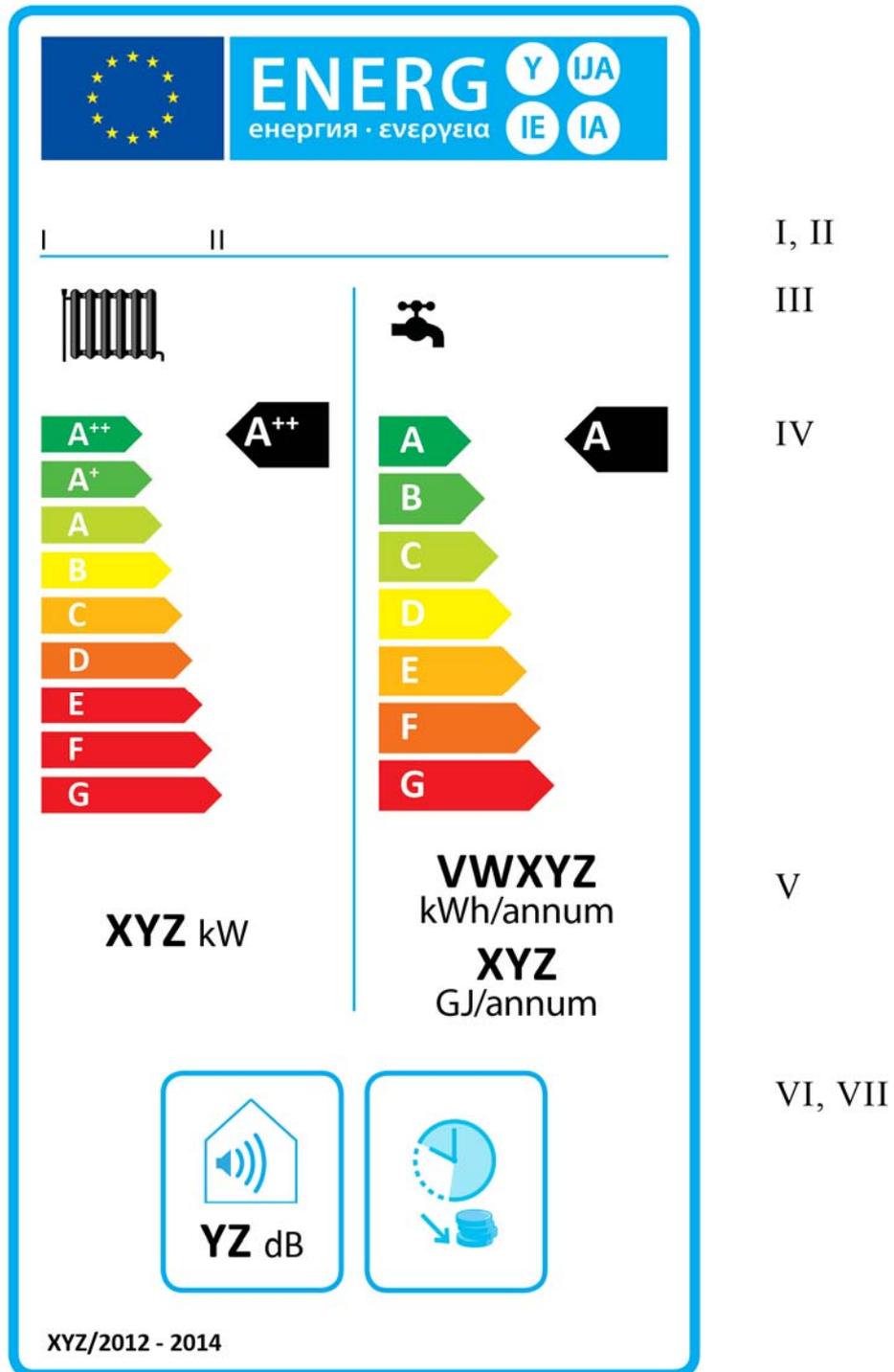
(a) The information listed in point 1.1.4(a) of this Annex shall be included in the label.

(b) The design aspects of the label for low-temperature heat pumps shall be in accordance with point 8 of this Annex.

2. Combination heaters

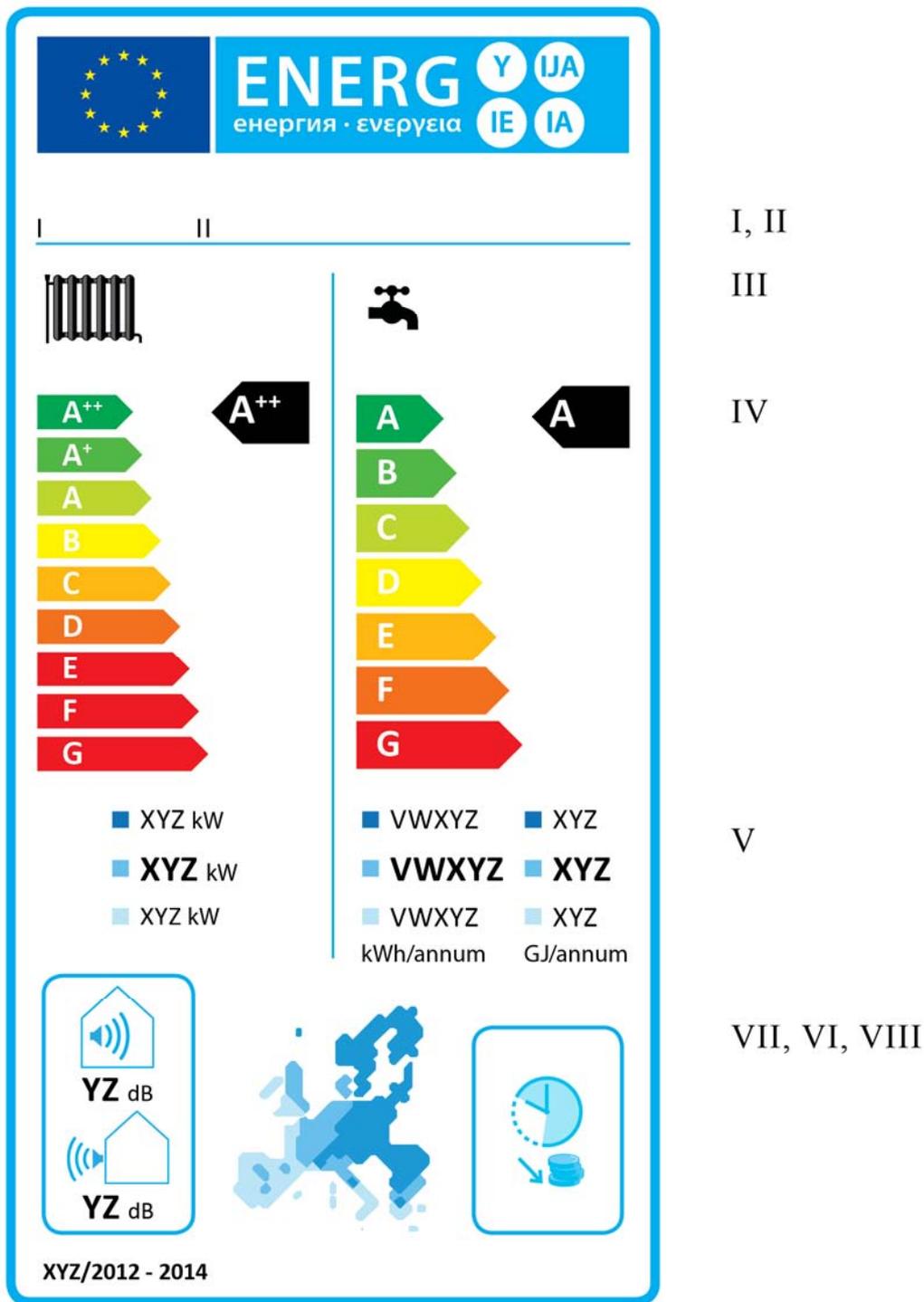
2.1. Label 1

2.1.1. Boiler combination heaters in seasonal space heating energy efficiency classes A⁺⁺ to G and in water heating energy efficiency classes A to G



- (a) The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;
 - III. the space heating function and the water heating function, displayed as a pictogram of the declared load profile in accordance with Table 5 of this Annex;
 - IV. the seasonal space heating energy efficiency class and the water heating energy efficiency class, determined in accordance with points 1 and 2 of Annex II; the head of the arrows containing the seasonal space heating energy efficiency class and water heating energy efficiency of the boiler combination heater shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. for space heating, the rated heat output in kW, rounded to the nearest integer; for water heating, the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of *GCV*, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;
 - VI. the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer.
 - VII. for boiler combination heaters able to work only during off-peak hours, the pictogram referred to in point 9(d)(12) of this Annex may be added.
- (b) The design aspects of the label for boiler combination heaters shall be in accordance with point 9 of this Annex.

2.1.2. Heat pump combination heaters in seasonal space heating energy efficiency classes A⁺⁺ to G and in water heating energy efficiency classes A to G

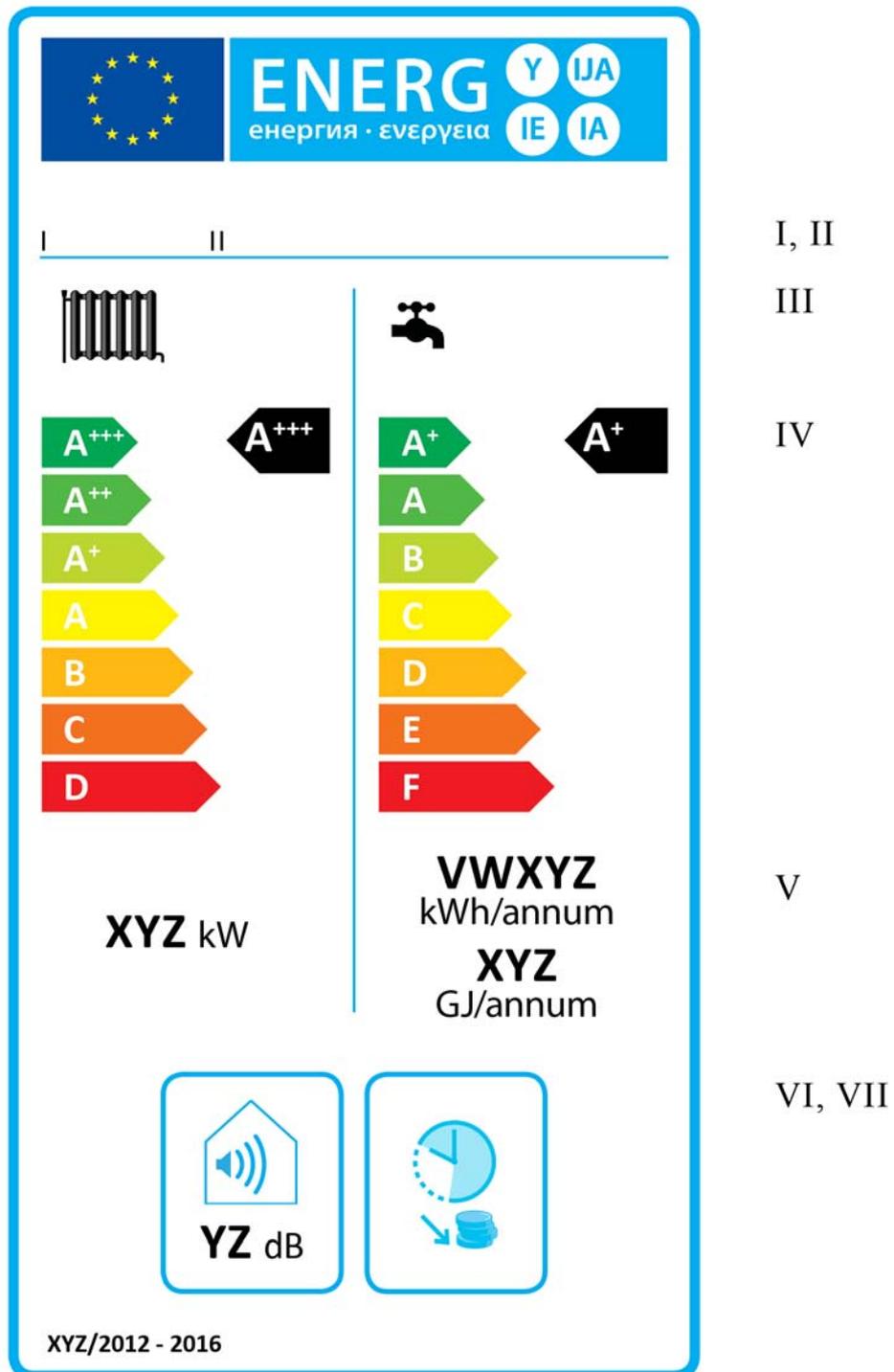


- (a) The following information shall be included in the label:
- I. supplier's name or trade mark;
 - II. supplier's model identifier;

- III. the space heating function for medium-temperature application and the water heating function, displayed as a pictogram of the declared load profile in accordance with Table 5 of this Annex;
 - IV. the seasonal space heating energy efficiency class under average climate conditions for medium-temperature application and the water heating energy efficiency class under average climate conditions, determined in accordance with points 1 and 2 of Annex II; the head of the arrows containing the seasonal space heating energy efficiency class and water heating energy efficiency of the heat pump combination heater shall be placed at the same height as the head of the relevant energy efficiency class;
 - V. for space heating, the rated heat output, including the rated heat output of any supplementary heater, in kW, under average, colder and warmer climate conditions, rounded to the nearest integer; for water heating, the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of *GCV*, under average, colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;
 - VI. European temperature map displaying three indicative temperature zones;
 - VII. the sound power level L_{WA} , indoors (if applicable) and outdoors, in dB, rounded to the nearest integer;
 - VII. for heat pump combination heaters able to work only during off-peak hours, the pictogram referred to in point 10(d)(13) of this Annex may be added.
- (b) The design aspects of the label for heat pump combination heaters shall be in accordance with point 10 of this Annex.

2.2. Label 2

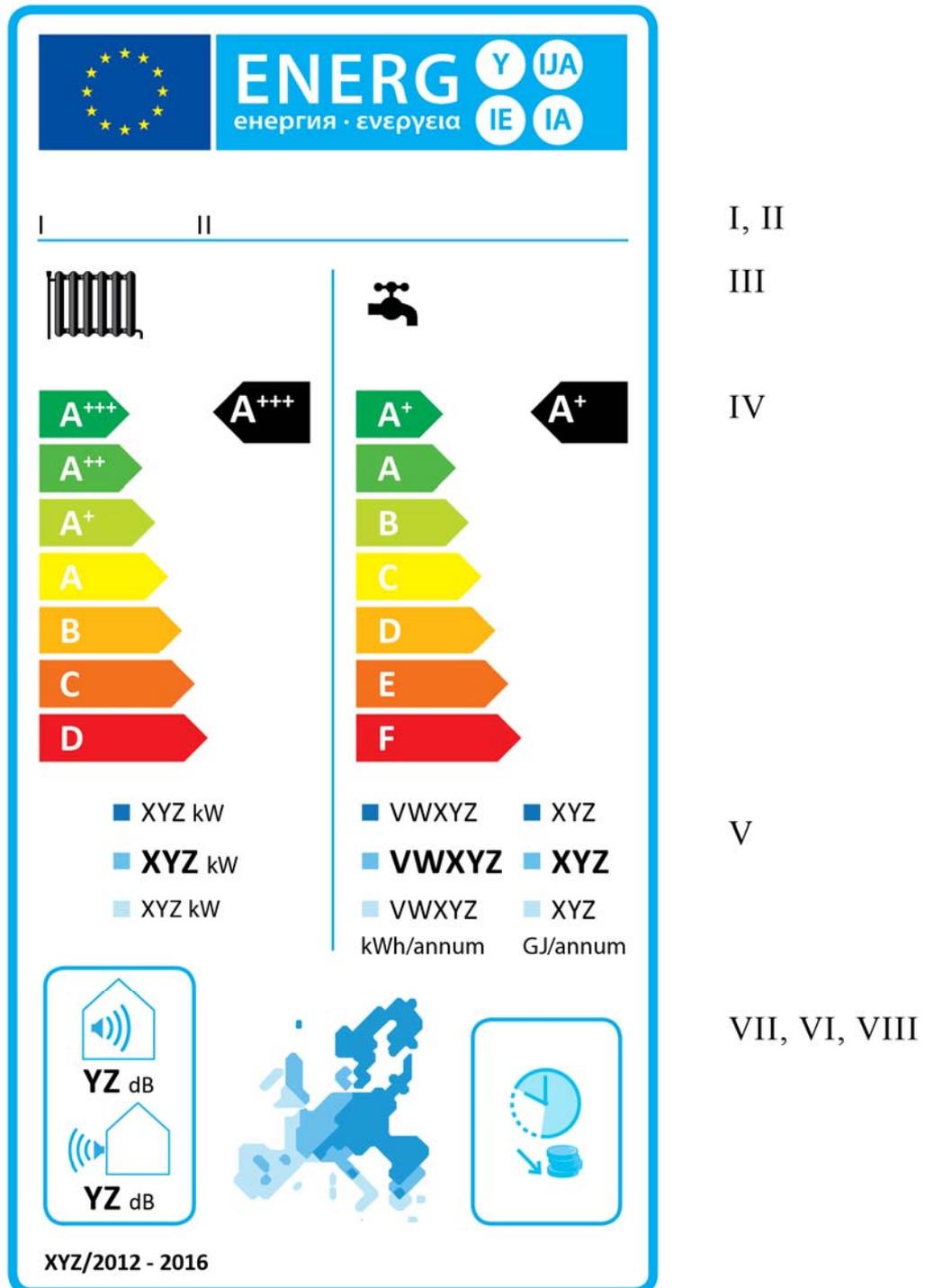
2.2.1. Boiler combination heaters in seasonal space heating energy efficiency classes A⁺⁺⁺ to D and in water heating energy efficiency classes A⁺ to F



(a) The information listed in point 2.1.1(a) of this Annex shall be included in the label.

(b) The design aspects of the label for boiler combination heaters shall be in accordance with point 9 of this Annex.

2.2.2. Heat pump combination heaters in seasonal space heating energy efficiency classes A⁺⁺⁺ to D and in water heating energy efficiency classes A⁺ to F

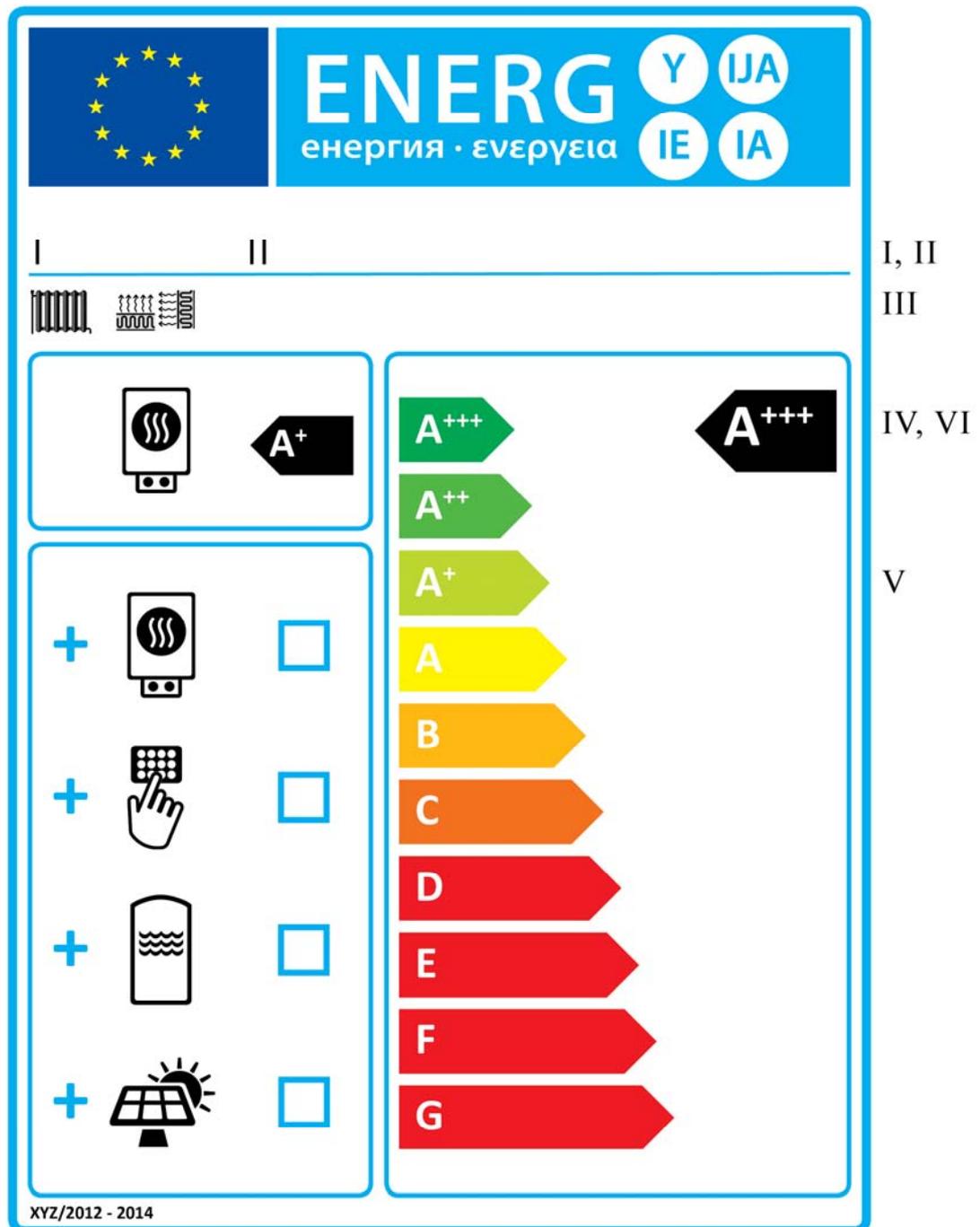


(a) The information listed in point 2.1.2(a) of this Annex shall be included in the label.

- (b) The design aspects of the label for heat pump combination heaters shall be in accordance with point 10 of this Annex.

3. Packages of space heater, temperature control and solar device

Label for packages of space heater, temperature control and solar device in seasonal space heating energy efficiency classes A⁺⁺⁺ to G



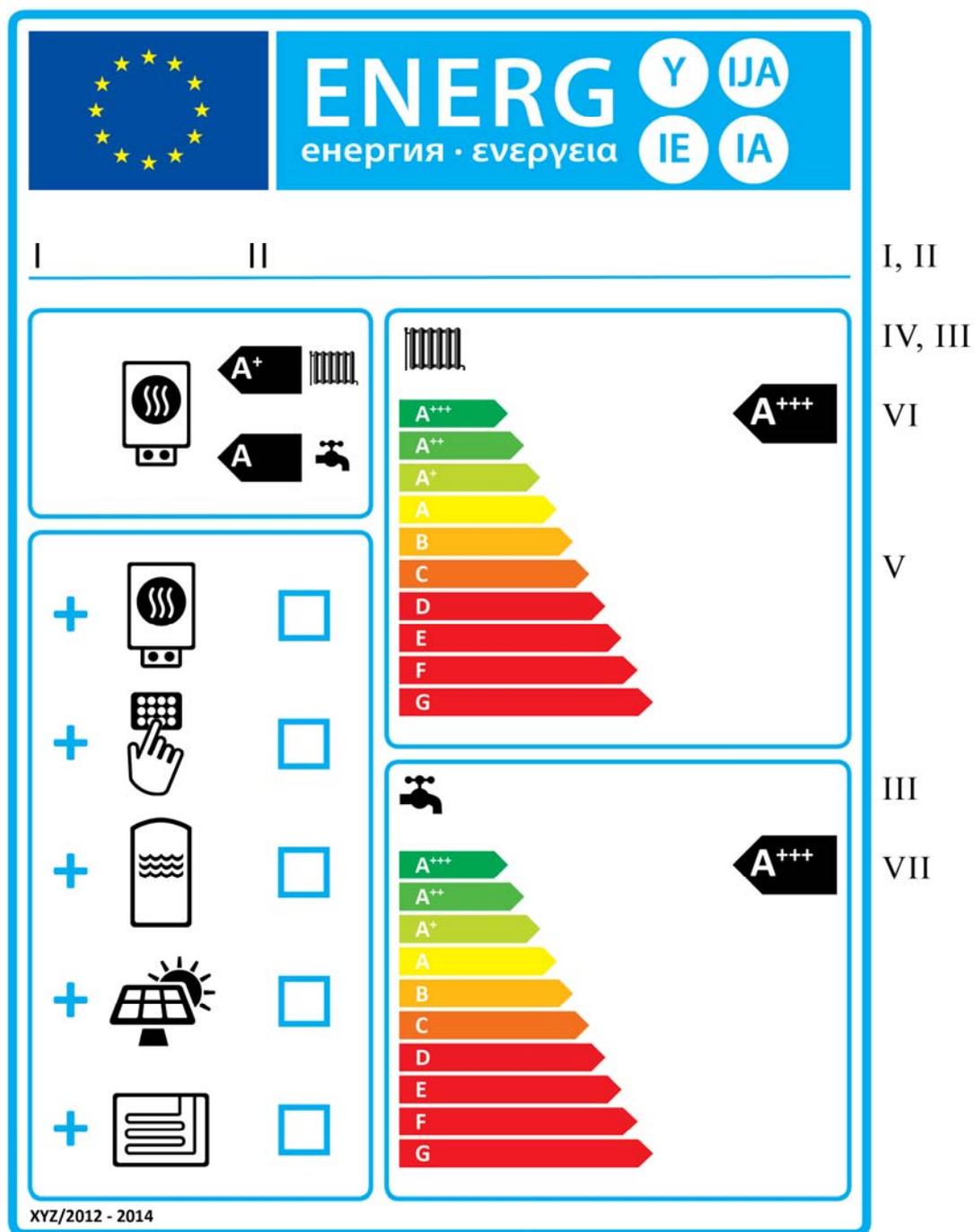
- (a) The following information shall be included in the label:

- I. dealer's name or trade mark;

- II. dealer's model(s) identifier;
 - III. the space heating function for medium- and low-temperature application, respectively;
 - IV. the seasonal space heating energy efficiency class of the space heater, determined in accordance with point 1 of Annex II;
 - V. indication of whether a second space heater, temperature control, hot water storage tank and/or solar collector may be included in the package of space heater, temperature control and solar device;
 - VI. the seasonal space heating energy efficiency class of the package of space heater, temperature control and solar device, determined in accordance with point 6 of Annex IV; the head of the arrow containing the seasonal space heating energy efficiency class of the package of space heater, temperature control and solar device shall be placed at the same height as the head of the relevant energy efficiency class.
- (b) The design aspects of the label for packages of space heater, temperature control and solar device shall be in accordance with point 11 of this Annex. For packages of space heater, temperature control and solar device in seasonal space heating energy efficiency classes A⁺⁺⁺ to D, the last classes E to G in the A⁺⁺⁺ to G scale may be omitted.

4. Packages of combination heater, temperature control, solar device and passive flue heat recovery device

Label for packages of combination heater, temperature control, solar device and passive flue heat recovery device in space heating and water heating energy efficiency classes A⁺⁺⁺ to G

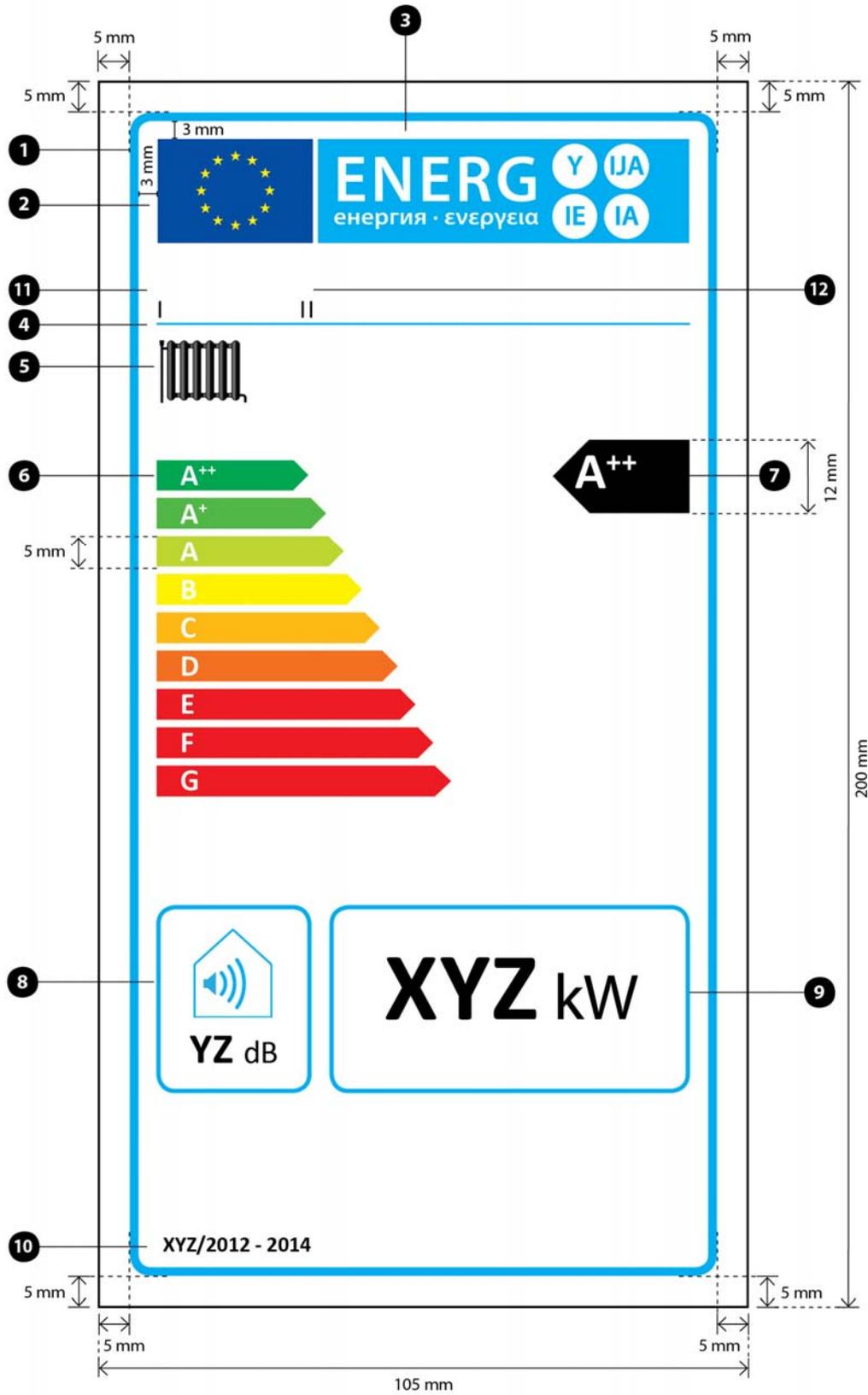


(a) The following information shall be included in the label:

- I. dealer's name or trade mark;

- II. dealer's model(s) identifier;
 - III. the space heating function and the water heating function, displayed as a pictogram of the declared load profile in accordance with Table 5 of this Annex;
 - IV. the space heating and water heating energy efficiency classes of the combination heater, determined in accordance with points 1 and 2 of Annex II;
 - V. indication of whether a second heater, temperature control, hot water storage tank, solar collector and/or passive flue heat recovery device may be included in the package of combination heater, temperature control, solar device and passive flue heat recovery device;
 - VI. the seasonal space heating energy efficiency class of the package of combination heater, temperature control, solar device and passive flue heat recovery device, determined in accordance with point 7 of Annex IV; the head of the arrow containing the seasonal space heating energy efficiency class of the package of combination heater, temperature control, solar device and passive flue heat recovery device shall be placed at the same height as the head of the relevant energy efficiency class;
 - VII. the water heating energy efficiency class of the package of combination heater, temperature control, solar device and passive flue heat recovery device, determined in accordance with point 7 of Annex IV; the head of the arrow containing the water heating energy efficiency class of the package of combination heater, temperature control, solar device and passive flue heat recovery device shall be placed at the same height as the head of the relevant energy efficiency class.
- (b) The design aspects of the label for packages of combination heater, temperature control, solar device and passive flue heat recovery device shall be in accordance with point 12 of this Annex. For packages of combination heater, temperature control, solar device and passive flue heat recovery device in space heating and/or water heating energy efficiency classes A⁺⁺⁺ to D, the last classes E to G in the A⁺⁺⁺ to G scale may be omitted.

5. The design of the label for boiler space heaters shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt, colour: cyan 100%, length: 86 mm.
 - ⑤ **Space heating function:**
 - **Pictogram** as depicted.
 - ⑥ **A⁺⁺-G and A⁺⁺⁺-D scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eight class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

7 Seasonal space heating energy efficiency class:

- **Arrow:** width: 22 mm, height: 12 mm, 100 % black,
- **Text:** Calibri bold 24 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

8 Sound power level, indoors:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100%, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 20 pt, 100 % black,
- **Text ‘dB’:** Calibri regular 15 pt, 100 % black.

9 Rated heat output:

- **Border:** 2 pt – colour: cyan 100% – round corners: 3,5 mm,
- **Value ‘XYZ’:** Calibri bold 45 pt, 100 % black,
- **Text ‘kW’:** Calibri regular 30 pt, 100 % black.

10 Number of Regulation and reference year:

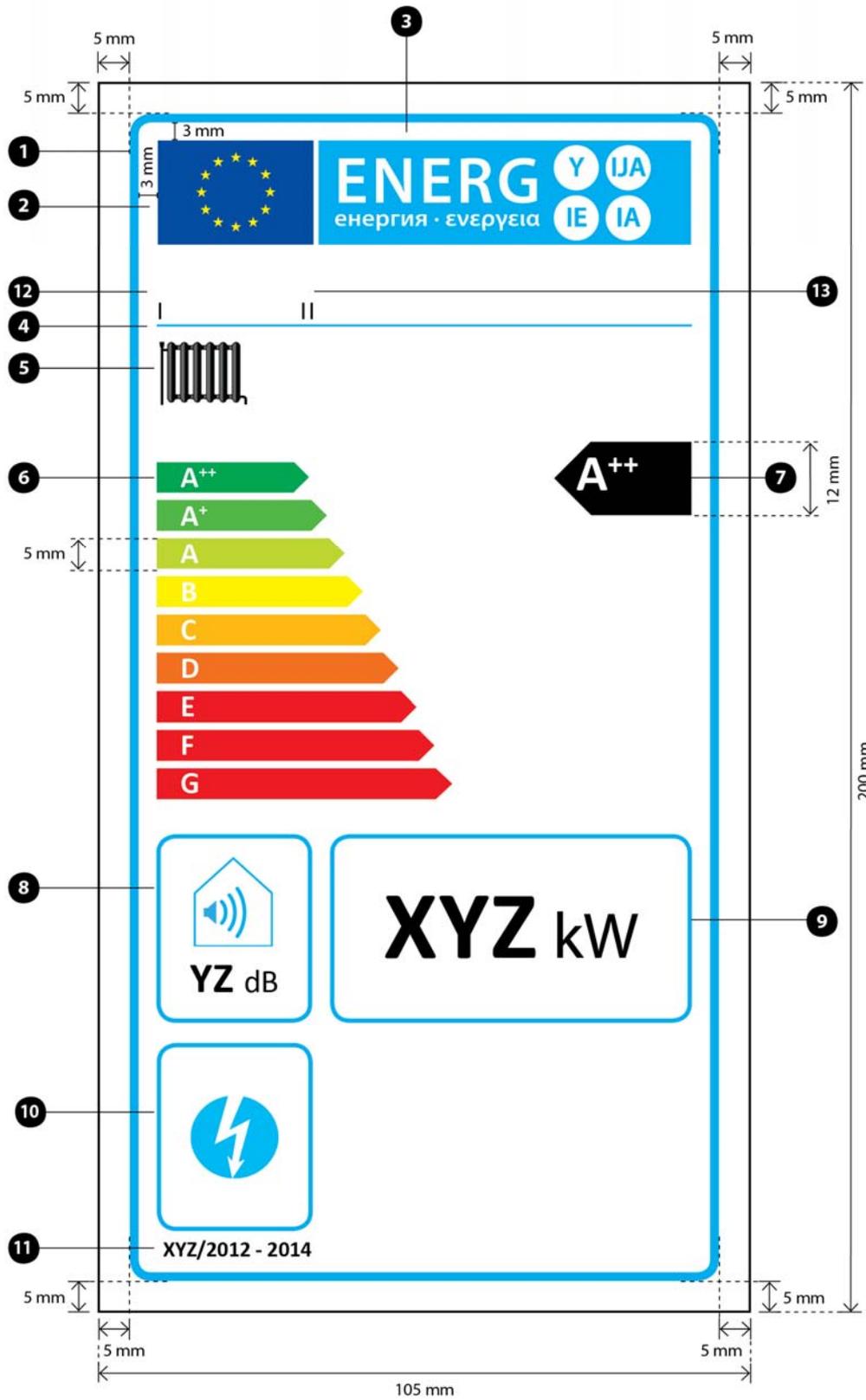
- **Text:** Calibri bold 10 pt.

11 Supplier’s name or trademark.

12 Supplier’s model identifier:

The suppliers’ name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

6. The design of the label for cogeneration space heaters shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt, colour: cyan 100 %, length: 86 mm.
 - ⑤ **Space heating function:**
 - **Pictogram** as depicted.
 - ⑥ **A⁺⁺-G and A⁺⁺⁺-D scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eight class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

7 Seasonal space heating energy efficiency class:

- **Arrow:** width: 22 mm, height: 12 mm, 100 % black,
- **Text:** Calibri bold 24 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

8 Sound power level, indoors:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 20 pt, 100 % black,
- **Text ‘dB’:** Calibri regular 15 pt, 100 % black.

9 Rated heat output:

- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘XYZ’:** Calibri bold 45 pt, 100 % black,
- **Text ‘kW’:** Calibri regular 30 pt, 100 % black.

10 Electricity function:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm.

11 Number of Regulation and reference year:

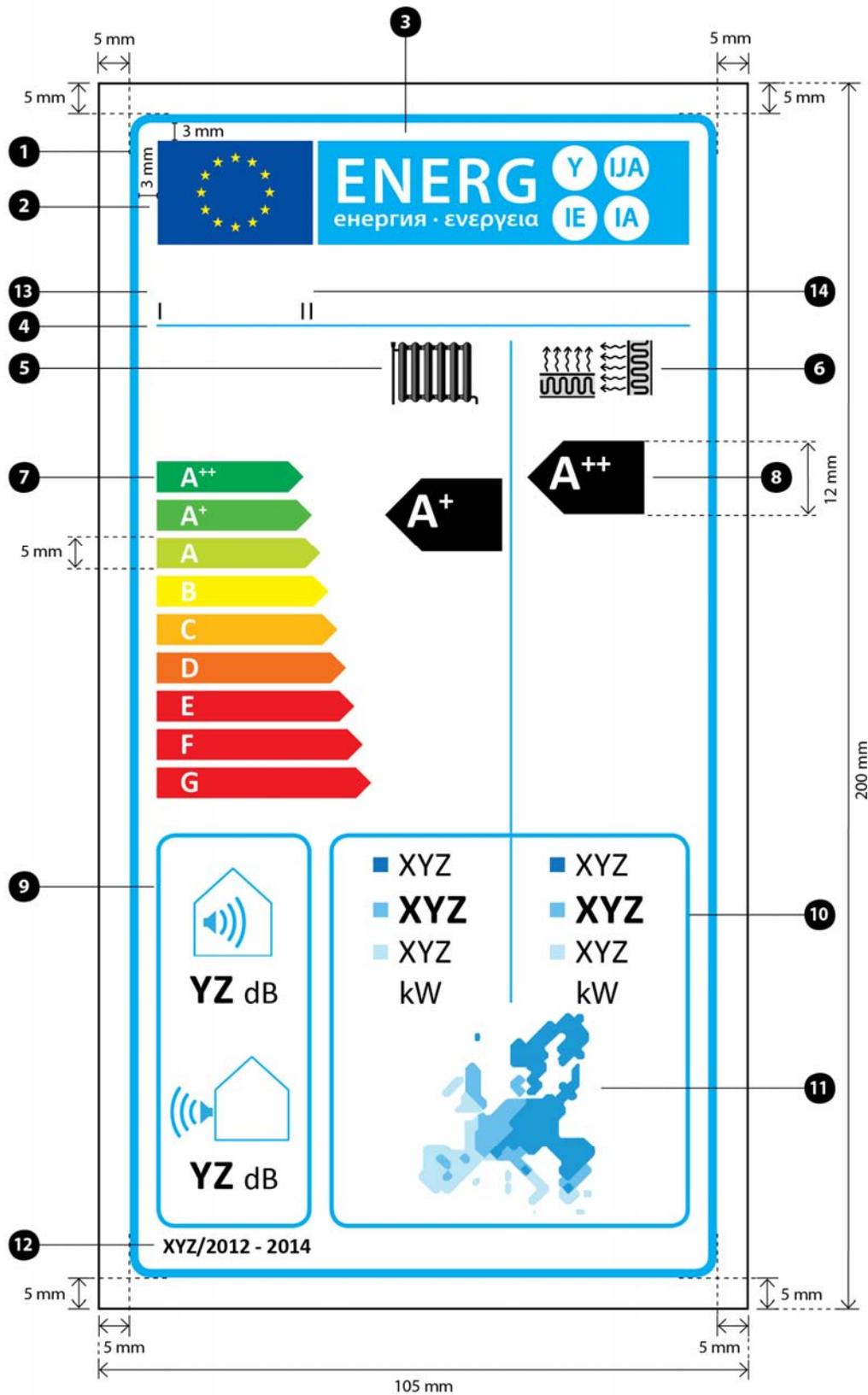
- **Text:** Calibri bold 10 pt.

12 Supplier’s name or trademark.

13 Supplier’s model identifier:

The suppliers' name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

7. The design of the label for heat pump space heaters shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt, colour: cyan 100%, length: 86 mm.
 - ⑤ **Space heating function for medium-temperature application:**
 - **Pictogram** as depicted.
 - ⑥ **Space heating function for low-temperature application:**
 - **Pictogram** as depicted.
 - ⑦ **A⁺⁺-G and A⁺⁺⁺-D scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eighth class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

⑧ **Seasonal space heating energy efficiency class:**

- **Arrow:** width: 19 mm, height: 12 mm, 100 % black,
- **Text:** Calibri bold 24 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

⑨ **Sound power level, indoors (if applicable) and outdoors:**

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100%, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 20 pt, 100% black,
- **Text ‘dB’:** Calibri regular 15 pt, 100 % black.

⑩ **Rated heat output:**

- **Border:** 2 pt, colour: cyan 100%, round corners: 3,5 mm,
- **Values ‘XYZ’:** Calibri at least 16 pt, 100% black,
- **Text ‘kW’:** Calibri regular 15 pt, 100 % black.

⑪ **European temperature map and colour squares:**

- **Pictogram** as depicted,
- **Colours:**
Dark blue: 86-51-00-00,
Middle blue: 53-08-00-00,
Light blue: 25-00-02-00.

⑫ **Number of Regulation and reference year:**

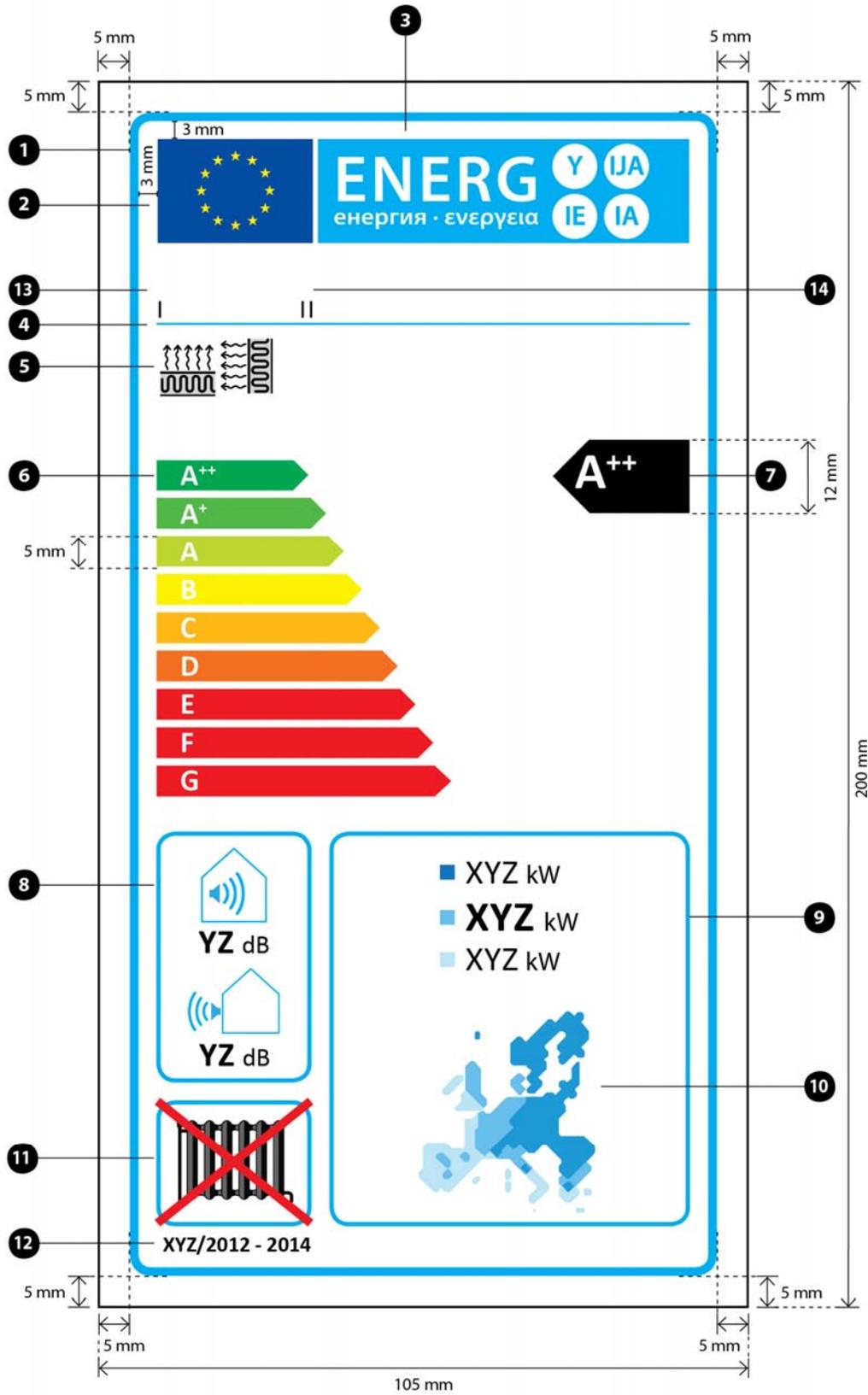
- **Text:** Calibri bold 10 pt.

⑬ **Supplier’s name or trademark.**

⑭ **Supplier’s model identifier:**

The suppliers’ name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

8. The design of the label for low-temperature heat pumps shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt, colour: cyan 100 %, length: 86 mm.
 - ⑤ **Space heating function for low-temperature application:**
 - **Pictogram** as depicted.
 - ⑥ **A⁺⁺-G and A⁺⁺⁺-D scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eight class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, '+' symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

7 Seasonal space heating energy efficiency class:

- **Arrow:** width: 22 mm, height: 12 mm, 100 % black,
- **Text:** Calibri bold 24 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

8 Sound power level, indoors (if applicable) and outdoors:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100%, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 16 pt, 100% black,
- **Text ‘dB’:** Calibri regular 12 pt, 100 % black.

9 Rated heat output:

- **Border:** 2 pt, colour: cyan 100%, round corners: 3,5 mm,
- **Values ‘XYZ’:** Calibri at least 16 pt, 100% black,
- **Text ‘kW’:** Calibri regular 12 pt, 100 % black.

10 European temperature map and colour squares:

- **Pictogram** as depicted,
- **Colours:**
Dark blue: 86-51-00-00,
Middle blue: 53-08-00-00,
Light blue: 25-00-02-00.

11 Not suitable for medium-temperature application:

- **Pictogram** as depicted,
- **Red cross:** 00-X-X-00, border: 4 pt,
- **Border:** 2 pt – colour: cyan 100% – round corners: 3,5 mm.

12 Number of Regulation and reference year:

- **Text:** Calibri bold 10 pt.

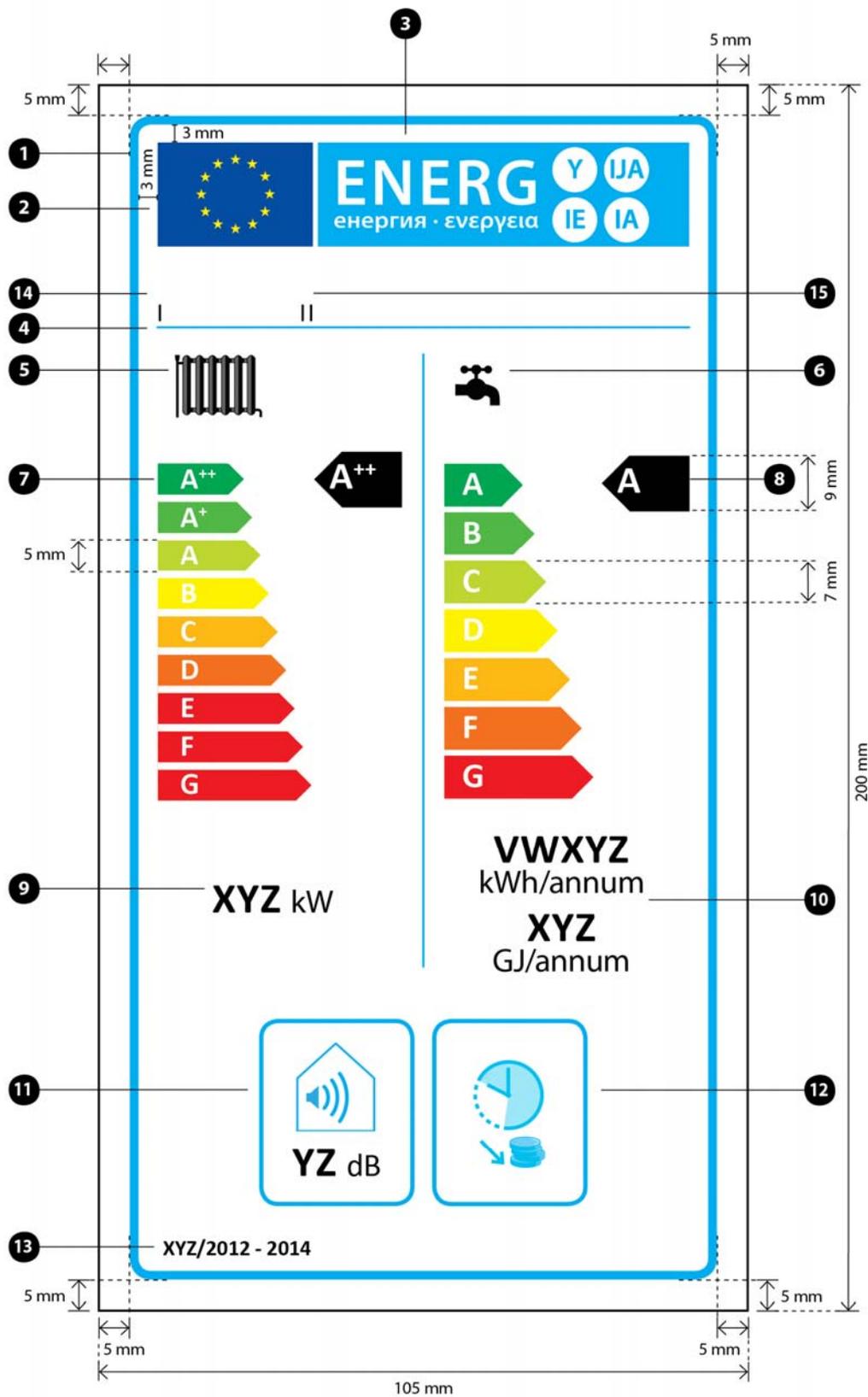
13 Supplier’s name or trademark.

14

Supplier's model identifier:

The suppliers' name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

9. The design of the label for boiler combination heaters shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
- ④ **Sub-logos border:** 1 pt, colour: cyan 100%, length: 86 mm.
- ⑤ **Space heating function:**
 - **Pictogram** as depicted.
- ⑥ **Water heating function:**
 - **Pictogram** of the declared load profile, as depicted in Table 5 of this Annex.
- ⑦ **A⁺⁺-G and A-G, A⁺⁺⁺-D or A⁺-F scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eight class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

8 Space heating and water heating energy efficiency classes:

- **Arrow:** width: 14 mm, height: 9 mm, 100 % black,
- **Text:** Calibri bold 18 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

9 Rated heat output:

- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘XYZ’:** Calibri bold 20 pt, 100 % black,
- **Text ‘kW’:** Calibri regular 15 pt, 100 % black.

10 Annual energy consumption in kWh/annum or GJ/annum:

- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘VWXYZ’ or ‘XYZ’:** Calibri bold 20 pt, 100 % black,
- **Text ‘kWh/annum’ or ‘GJ/annum’:** Calibri regular 15 pt, 100 % black.

11 Sound power level, indoors:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 20 pt, 100 % black,
- **Text ‘dB’:** Calibri regular 15 pt, 100 % black.

12 If applicable, off-peak fitness:

- **Pictogram** as depicted,
- **Border:** 2 pt – colour: cyan 100 % – round corners: 3,5 mm.

13 Number of Regulation and reference year:

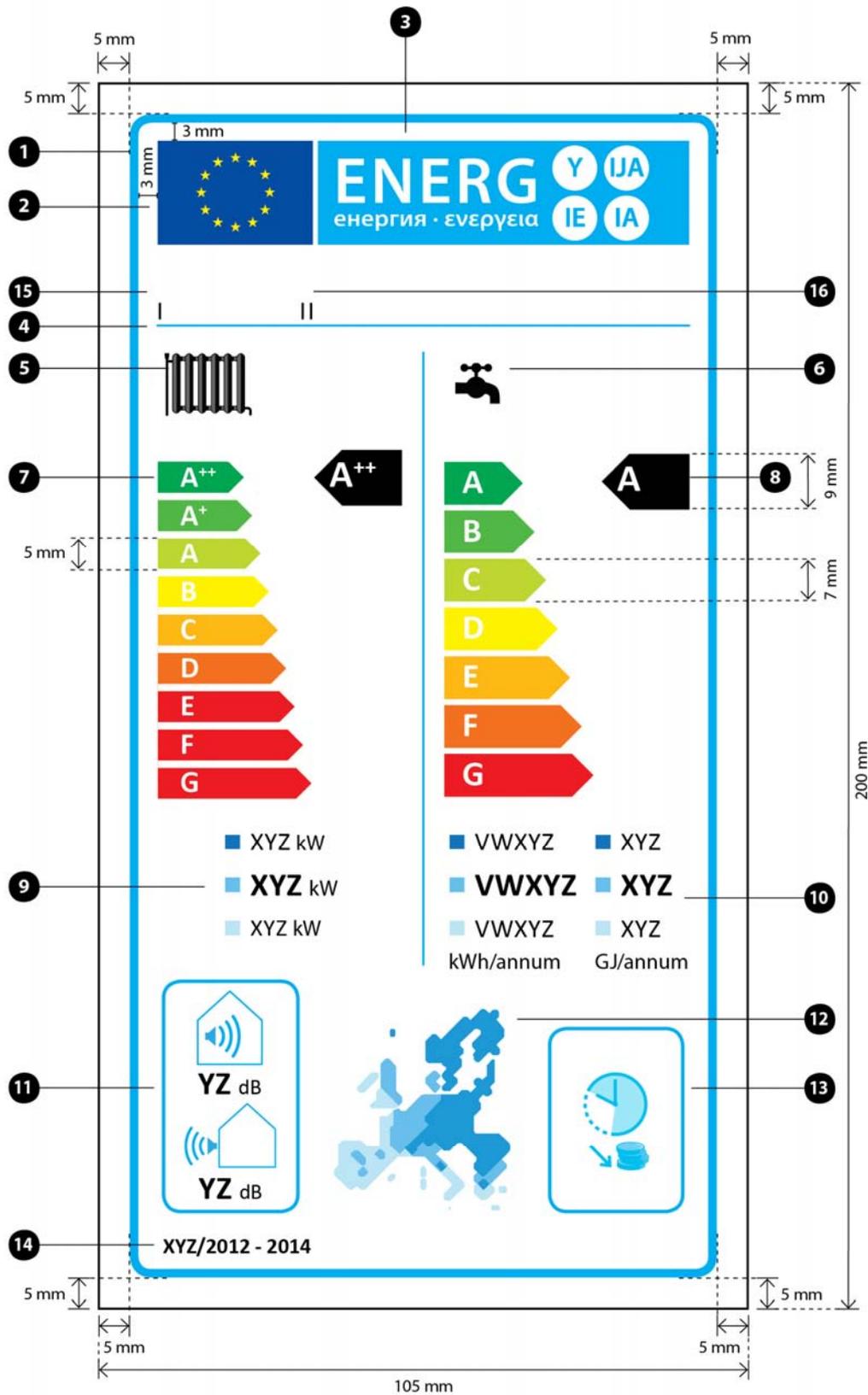
- **Text:** Calibri bold 10 pt.

14 Supplier’s name or trademark.

15 Supplier's model identifier:

The suppliers' name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

10. The design of the label for heat pump combination heaters shall be the following:



Whereby:

- (a) The label shall be at least 105 mm wide and 200 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 4 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: 86 mm, height: 17 mm.
 - ④ **Sub-logos border:** 1 pt, colour: cyan 100%, length: 86 mm.
 - ⑤ **Space heating function:**
 - **Pictogram** as depicted.
 - ⑥ **Water heating function:**
 - **Pictogram** of the declared load profile, as depicted in Table 5 of this Annex.
 - ⑦ **A⁺⁺-G and A-G, A⁺⁺⁺-D or A⁺-F scales, respectively:**
 - **Arrow:** height: 5 mm, gap: 1,3 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,
Seventh class: 00-X-X-00,
Eight class: 00-X-X-00,
Last class: 00-X-X-00,
 - **Text:** Calibri bold 14 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row;
 - **Arrow:** height: 7 mm, gap: 1 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 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

8 Space heating and water heating energy efficiency classes:

- **Arrow:** width: 14 mm, height: 9 mm, 100 % black,
- **Text:** Calibri bold 18 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

9 Rated heat output:

- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Values ‘XYZ’:** Calibri at least 12 pt, 100 % black,
- **Text ‘kW’:** Calibri regular 10 pt, 100 % black.

10 Annual energy consumption in kWh/annum or GJ/annum:

- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Values ‘VWXYZ’ or ‘XYZ’:** Calibri at least 12 pt, 100 % black,
- **Text ‘kWh/annum’ or ‘GJ/annum’:** Calibri regular 10 pt, 100 % black.

11 Sound power level, indoors (if applicable) and outdoors:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm,
- **Value ‘YZ’:** Calibri bold 15 pt, 100 % black,
- **Text ‘dB’:** Calibri regular 10 pt, 100 % black.

12 European temperature map and colour squares:

- **Pictogram** as depicted,
- **Colours:**
Dark blue: 86-51-00-00,
Middle blue: 53-08-00-00,
Light blue: 25-00-02-00.

13 If applicable, off-peak fitness:

- **Pictogram** as depicted,
- **Border:** 2 pt, colour: cyan 100 %, round corners: 3,5 mm.

⑭ **Number of Regulation and reference year:**

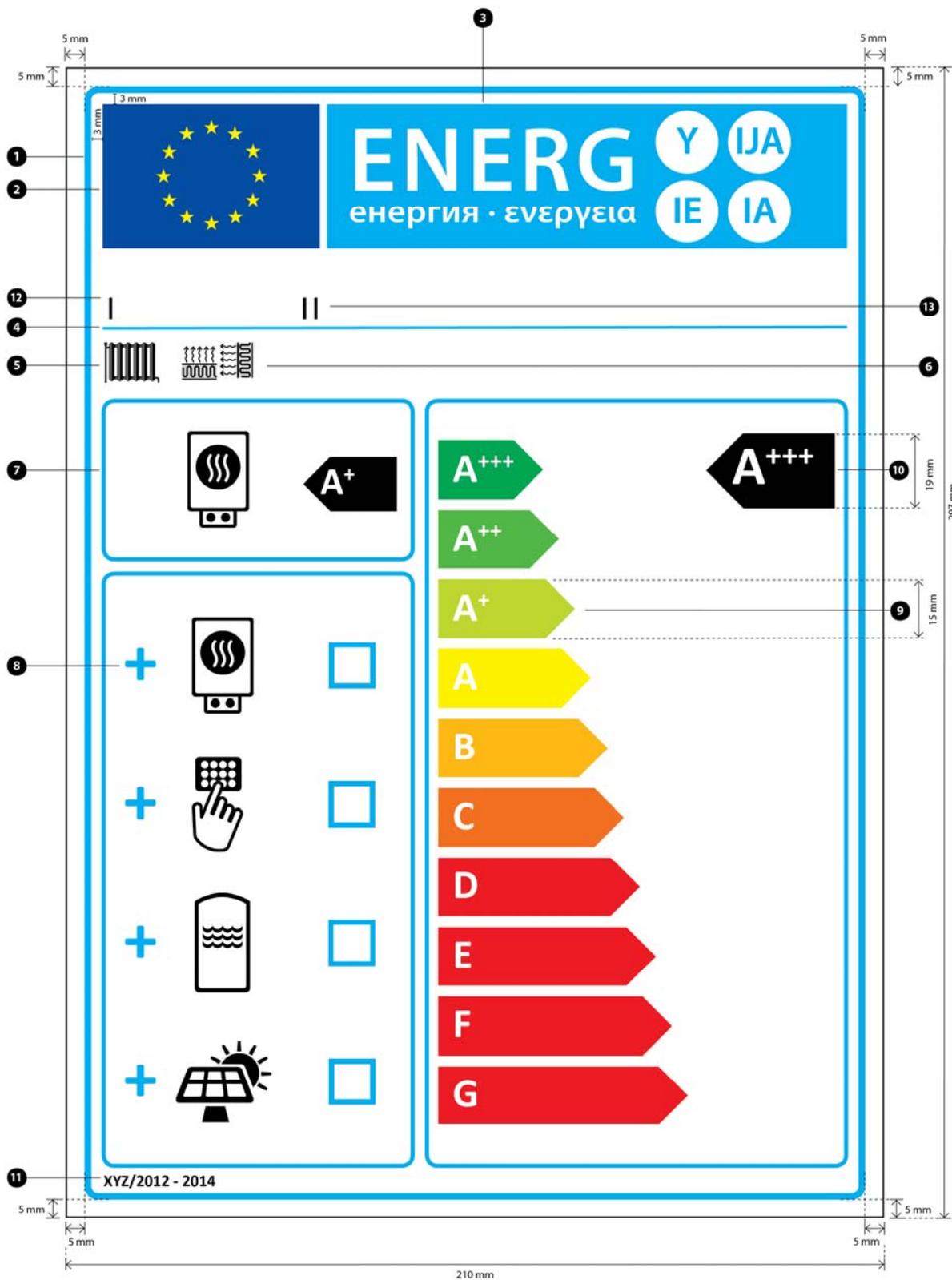
- **Text:** Calibri bold 10.

⑮ **Supplier's name or trademark.**

⑯ **Supplier's model identifier:**

The suppliers' name or trade mark and model identifier shall fit in a space of 86 x 12 mm.

11. The design of the label for packages of space heater, temperature control and solar device shall be the following:



Whereby:

- (a) The label shall be at least 210 mm wide and 297 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 6 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: 191 mm, height: 37 mm.
 - ④ **Sub-logos border:** 2 pt, colour: cyan 100 %, length: 191 mm.
 - ⑤ **If applicable, space heating function for medium-temperature application:**
 - **Pictogram** as depicted.
 - ⑥ **If applicable, space heating function for low-temperature application:**
 - **Pictogram** as depicted.
 - ⑦ **Space heater:**
 - **Pictogram** as depicted,
 - **Seasonal space heating energy efficiency class of space heater:**
Arrow: width: 24 mm, height: 14 mm, 100 % black;
Text: Calibri bold 28 pt, capitals, white, ‘+’ symbol: superscript, aligned on a single row,
 - **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.
 - ⑧ **Package with supplementary heater, temperature control, hot water storage tank and solar collector:**
 - **Pictograms** as depicted,
 - **‘+’ symbol:** Calibri bold 50 pt, cyan 100 %,
 - **Boxes:** width: 12 mm, height: 12 mm, border: 4 pt, cyan 100 %,

- **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.

⑨ **A⁺⁺⁺-G scale with border:**

- **Arrow:** height: 15 mm, gap: 3 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,
Seventh class: 00-X-X-00,
If applicable, last classes: 00-X-X-00,
- **Text:** Calibri bold 30 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row,
- **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.

⑩ **Seasonal space heating energy efficiency class for package of space heater, temperature control and solar device:**

- **Arrow:** width: 33 mm, height: 19 mm, 100 % black,
- **Text:** Calibri bold 40 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

⑪ **Number of Regulation and reference year:**

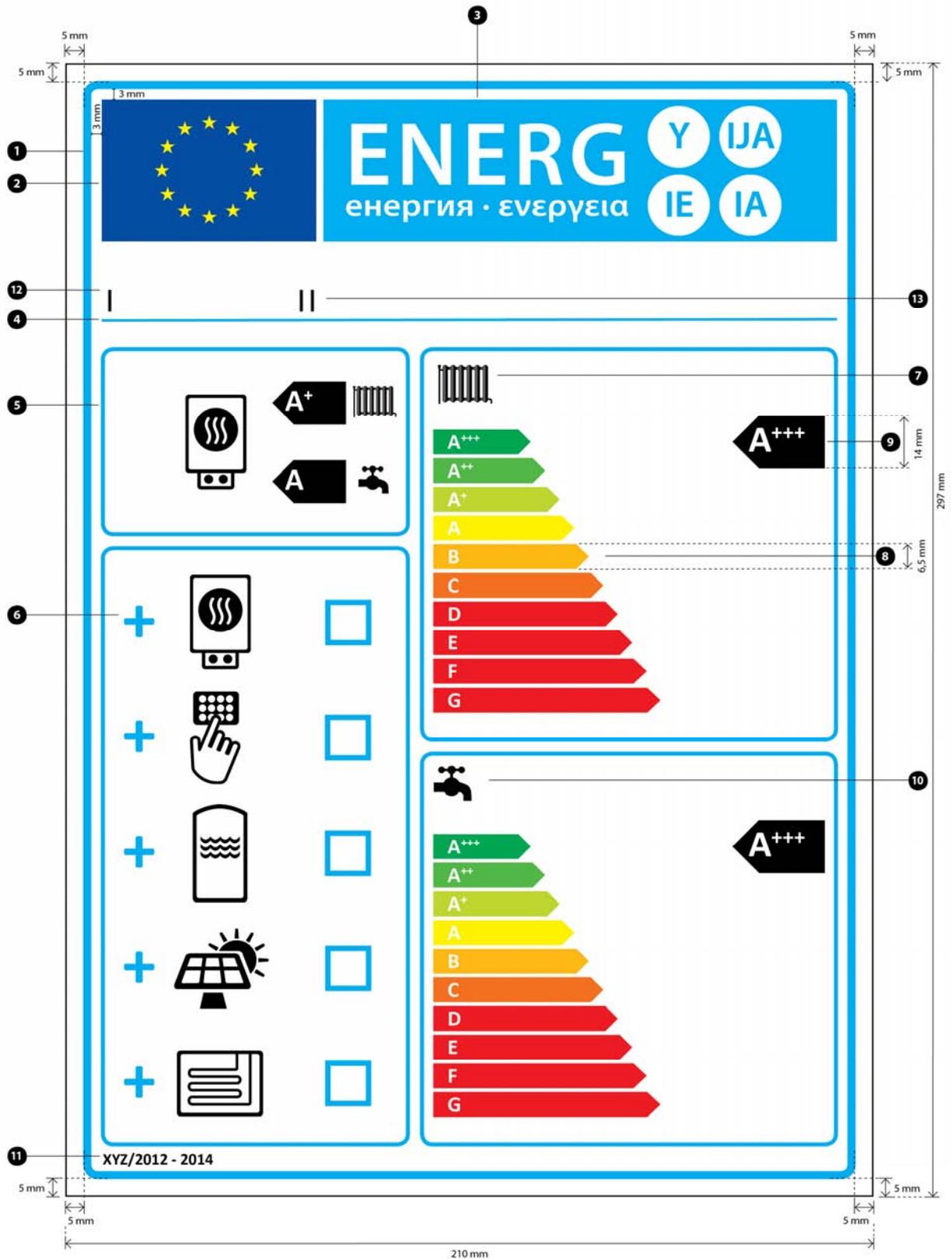
- **Text:** Calibri bold 12 pt.

⑫ **Dealer’s name or trademark.**

⑬ **Dealer’s model identifier:**

The dealers’ name or trade mark and model identifier shall fit in a space of 191 x 19 mm.

12. The design of the label for packages of combination heater, temperature control, solar device and passive flue heat recovery device shall be the following:



Whereby:

- (a) The label shall be at least 210 mm wide and 297 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.
- (b) The background shall be white.
- (c) Colours are coded as 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:** 6 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: 191 mm, height: 37 mm.
 - ④ **Sub-logos border:** 2 pt, colour: cyan 100 %, length: 191 mm.
 - ⑤ **Combination heater:**
 - **Pictogram** as depicted,
 - **Space heating and water heating energy efficiency class of combination heater:**
Arrow: width: 19 mm, height: 11 mm, 100 % black,
Text: Calibri bold 23 pt, capitals, white, ‘+’ symbol: superscript, aligned on a single row,
 - **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.
 - ⑥ **Package with supplementary heater, temperature control, hot water storage tank, solar collector and passive flue heat recovery device:**
 - **Pictograms** as depicted,
 - **‘+’ symbol:** Calibri bold 50 pt, cyan 100 %,
 - **Boxes:** width: 12 mm, height: 12 mm, border: 4 pt, cyan 100 %,
 - **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.
 - ⑦ **Space heating function:**
 - **Pictogram** as depicted.
 - ⑧ **A⁺⁺⁺-G scale with border:**

- **Arrow:** height: 6,5 mm, gap: 1 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,
Seventh class: 00-X-X-00,
If applicable, last classes: 00-X-X-00,
- **Text:** Calibri bold 16 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row,
- **Border:** 3 pt, colour: cyan 100 %, round corners: 3,5 mm.

9 Space heating and water heating energy efficiency class, respectively, for package of combination heater, temperature control, solar device and passive flue heat recovery device:

- **Arrow:** width: 24 mm, height: 14 mm, 100 % black,
- **Text:** Calibri bold 28 pt, capitals, white, ‘+’ symbols: superscript, aligned on a single row.

10 Water heating function:

- **Pictogram of the declared load profile**, as depicted in Table 5 of this Annex.

11 Number of Regulation and reference year:

- **Text:** Calibri bold 12 pt.

12 Dealer’s name or trademark.

13 Dealer’s model identifier:

The dealers’ name or trade mark and model identifier shall fit in a space of 191 x 19 mm.

Table 5: Pictograms and typical usage for load profiles related to water heating in combination heaters

Declared load profile	Pictogram	Typical usage
3XS		Small single basin at 35 °C
XXS		Single basin at 35 °C
XS		Electric shower
S		Shower and single basin at 35 °C
M		Showers and sink at 55 °C
L		Bath, shower and sink at 55 °C
XL		Multiple baths and showers
XXL		Simultaneous baths and showers
3XL		Small collective housing
4XL		Large collective housing

ANNEX IV Product fiche

1. Space heaters

1.1. The information in the product fiche of the space heater 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 trademark;
- (b) supplier's model identifier;
- (c) the seasonal space heating energy efficiency class of the model, determined in accordance with point 1 of Annex II;
- (d) the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer, for heat pump space heaters under average climate conditions;
- (e) the seasonal space heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII, for heat pump space heaters under average climate conditions;
- (f) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII, for heat pump space heaters under average climate conditions;
- (g) the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer (for heat pump space heaters if applicable);
- (h) any specific precautions that shall be taken when the space heater is assembled, installed or maintained;

in addition, for cogeneration space heaters:

- (i) the electrical efficiency in %, rounded to the nearest integer;

in addition, for heat pump space heaters:

- (j) the rated heat output, including the rated heat output of any supplementary heater, in kW, under colder and warmer climate conditions, rounded to the nearest integer;
- (k) the seasonal space heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;
- (l) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;

(m) the sound power level L_{WA} , outdoors, in dB, rounded to the nearest integer;

in addition, for low-temperature heat pumps:

(n) an indication that the low-temperature heat pump is only suitable for low-temperature application.

1.2. One fiche may cover a number of space heater models supplied by the same supplier.

1.3. 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 1.1 not already displayed on the label shall also be provided.

2. Combination heaters

2.1. The information in the product fiche of the combination heater 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 trademark;

(b) supplier's model identifier;

(c) for space heating, the medium-temperature application; for water heating, the declared load profile, expressed as the appropriate letter and typical usage in accordance with Table 16 of Annex VII;

(d) the seasonal space heating energy efficiency class and the water heating energy efficiency class of the model, determined in accordance with points 1 and 2 of Annex II;

(e) the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer, for heat pump combination heaters under average climate conditions;

(f) for space heating, the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of GCV , rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump combination heaters under average climate conditions); for water heating, the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of GCV , rounded to the nearest integer and calculated in accordance with point 5 of Annex VII (for heat pump combination heaters under average climate conditions);

(g) the seasonal space heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump combination heaters under average climate conditions); the water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII (for heat pump combination heaters under average climate conditions);

- (h) the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer (for heat pump combination heaters if applicable);
- (i) if applicable, an indication that the combination heater is able to work only during off-peak hours;
- (j) any specific precautions that shall be taken when the combination heater is assembled, installed or maintained;

in addition, for heat pump combination heaters:

- (k) the rated heat output, including the rated heat output of any supplementary heater, in kW, under colder and warmer climate conditions, rounded to the nearest integer;
- (l) for space heating, the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of GCV , under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII; for water heating, the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of GCV , under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;
- (m) the seasonal space heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII; the water heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;
- (n) the sound power level L_{WA} , outdoors, in dB, rounded to the nearest integer.

2.2. One fiche may cover a number of combination heater models supplied by the same supplier.

2.3. 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 2.1 not already displayed on the label shall also be provided.

3. Temperature controls

3.1. The information in the product fiche of the temperature control 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;
- (c) the class of the temperature control;
- (d) the contribution of the temperature control to seasonal space heating energy efficiency in %, rounded to one decimal place.

3.2. One fiche may cover a number of temperature control models supplied by the same supplier.

4. Solar devices

4.1. The information in the product fiche of the solar device 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;
- (c) the collector aperture area in m², to two decimal places;
- (d) the collector efficiency in %, rounded to the nearest integer;
- (e) the energy efficiency class of the solar hot water storage tank, determined in accordance with point 3 of Annex II;
- (f) the standing loss of the solar hot water storage tank in W, rounded to the nearest integer;
- (g) the storage volume of the solar hot water storage tank in litres and m³;
- (h) the annual non-solar heat contribution Q_{nonsol} in kWh in terms of primary energy for electricity and/or in kWh in terms of GCV for fuels, for the load profiles M, L, XL, XXL, 3XL and 4XL under average climate conditions, rounded to the nearest integer;
- (i) the pump power consumption in W, rounded to the nearest integer;
- (j) the standby power consumption in W, to two decimal places;
- (k) the annual auxiliary electricity consumption Q_{aux} in kWh in terms of final energy, rounded to the nearest integer.

- 4.2. One fiche may cover a number of solar device models supplied by the same supplier.
5. Passive flue heat recovery device
- 5.1. The information in the product fiche of the passive flue heat recovery device 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;
 - (c) the combination heater models for which the passive flue heat recovery device was tested;
 - (d) the contribution of the passive flue heat recovery device to water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 7 of Annex VII.
- 5.2. One fiche may cover a number of passive flue heat recovery device models supplied by the same supplier.
6. Packages of space heater, temperature control and solar device
- The fiche for packages of space heater, temperature control and solar device shall contain the elements set out in Figure 1, Figure 2, Figure 3 and Figure 4, respectively, for evaluating the seasonal space heating energy efficiency of a package of space heater, temperature control and solar device, including the following information:
- I: the value of the seasonal space heating energy efficiency of the preferential space heater, expressed in %;
 - II: the factor for weighting the heat output of preferential and supplementary heaters of a package as set out in Tables 6 and 7 of this Annex, respectively;
 - III: the value of the mathematical expression: $294/(11 \cdot Prated)$, whereby *Prated* is related to the preferential space heater;
 - IV: the value of the mathematical expression $115/(11 \cdot Prated)$, whereby *Prated* is related to the preferential space heater;
- in addition, for preferential heat pump space heaters:
- V: the value of the difference between the space heating energy efficiencies under average and colder climate conditions, expressed in %;
 - VI: the value of the difference between the space heating energy efficiencies under warmer and average climate conditions, expressed in %.
7. Packages of combination heater, temperature control, solar device and passive flue heat recovery device

The fiche for packages of combination heater, temperature control, solar device and passive flue heat recovery device shall contain the elements set out in points (a) and (b):

- (a) the elements set out in Figure 1 and Figure 3, respectively, for evaluating the seasonal space heating energy efficiency of a package of combination heater, temperature control, solar device and passive flue heat recovery device, including the following information:
- I: the value of the seasonal space heating energy efficiency of the preferential combination heater, expressed in %;
 - II: the factor for weighting the heat output of the preferential and supplementary heaters of a package as set out in Tables 6 and 7 of this Annex, respectively;
 - III: the value of the mathematical expression: $294/(11 \cdot Prated)$, whereby *Prated* is related to the preferential combination heater;
 - IV: the value of the mathematical expression $115/(11 \cdot Prated)$, whereby *Prated* is related to the preferential combination heater;

in addition, for preferential heat pump combination heaters:

- V: the value of the difference between the space heating energy efficiencies under average and colder climate conditions, expressed in %;
 - VI: the value of the difference between the space heating energy efficiencies under warmer and average climate conditions, expressed in %;
- (b) the elements set out in Figure 5 for evaluating the water heating energy efficiency of a package of combination heater, temperature control, solar device and passive flue heat recovery device, where the following information shall be included:
- I: the value of the water heating energy efficiency of the combination heater, expressed in %;
 - II: the value of the mathematical expression $(220 \cdot Q_{ref})/Q_{nonsol}$, where Q_{ref} is taken from Table 16 in Annex VII and Q_{nonsol} from the product fiche of the solar device for the declared load profile M, L, XL, XXL, 3XL or 4XL of the combination heater;
 - III: the value of the mathematical expression $(Q_{aux} \cdot 2,5)/(220 \cdot Q_{ref})$, expressed in %, where Q_{aux} is taken from the product fiche of the solar device and Q_{ref} from Table 16 in Annex VII for the declared load profile M, L, XL, XXL, 3XL or 4XL.

Table 6: For the purposes of Figure 1 of this Annex, weighting of preferential boiler space heater or boiler combination heater and supplementary heater *

$P_{sup} / (Prated + P_{sup})$ **	II, package without hot water storage tank	II, package with hot water storage tank
0	0	0
0,1	0,30	0,37
0,2	0,55	0,70
0,3	0,75	0,85
0,4	0,85	0,94
0,5	0,95	0,98
0,6	0,98	1,00
• 0,7	1,00	1,00

* The intermediate values are calculated by linear interpolation between the two adjacent values.

** *Prated* is related to the preferential space heater or combination heater.

Table 7: For the purposes of Figures 2 to 4 of this Annex, weighting of preferential cogeneration space heater, heat pump space heater, heat pump combination heater or low-temperature heat pump and supplementary heater *

$Prated / (Prated + P_{sup})$ **	II, package without hot water storage tank	II, package with hot water storage tank
0	1,00	1,00
0,1	0,70	0,63
0,2	0,45	0,30
0,3	0,25	0,15
0,4	0,15	0,06
0,5	0,05	0,02
0,6	0,02	0
• 0,7	0	0

* The intermediate values are calculated by linear interpolation between the two adjacent values.

** *Prated* is related to the preferential space heater or combination heater.

Figure 1: For preferential boiler space heaters and preferential boiler combination heaters, element of the fiche for a package of space heater, temperature control and solar device and a package of combination heater, temperature control, solar device and passive flue heat recovery device, respectively, indicating the seasonal space heating energy efficiency of the package offered

Seasonal space heating energy efficiency of boiler ① %

Temperature control ② %
 From fiche of temperature control
 Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

Second boiler ③ %
 From fiche of second boiler
 Seasonal space heating energy efficiency (in %) $(\text{[]} - \text{'I'}) \times 0,1 = \pm$

Solar contribution ④ %
 From fiche of solar device
 Collector size (in m²) Tank volume (in m³) Collector efficiency (in %) Tank rating
 A⁺ = 0,95, A = 0,91, B = 0,86, C = 0,83, D-G = 0,81
 $(\text{'III'} \times \text{[]} + \text{'IV'} \times \text{[]}) \times 0,9 \times (\text{[]}/100) \times \text{[]} =$

Supplementary heat pump ⑤ %
 From fiche of heat pump
 Seasonal space heating energy efficiency (in %) $(\text{[]} - \text{'I'}) \times \text{'II'} = +$

Solar contribution AND Supplementary heat pump ⑥ %
 Select smaller value $0,5 \times \text{[]}$ OR $0,5 \times \text{[]} = -$

Seasonal space heating energy efficiency of package ⑦ %

Seasonal space heating energy efficiency class of package

<input type="checkbox"/>									
G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
< 30%	≥ 30%	≥ 34%	≥ 36%	≥ 75%	≥ 82%	≥ 90%	≥ 98%	≥ 125%	≥ 150%

Boiler and supplementary heat pump installed with low temperature heat emitters at 35 °C ? ⑦ %
 From fiche of heat pump $\text{[]} + (50 \times \text{'II'}) =$

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

Figure 2: For preferential cogeneration space heaters, element of the fiche for a package of space heater, temperature control and solar device indicating the seasonal space heating energy efficiency of the package offered

Seasonal space heating energy efficiency of cogeneration space heater		¹ <input type="text" value="'I'"/> %																														
Temperature control From fiche of temperature control	Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %	+ <input type="text"/> %																														
Supplementary boiler From fiche of boiler	Seasonal space heating energy efficiency (in %) $(\text{ - 'I' }) \times \text{'II'}$	- <input type="text" value="3"/> %																														
Solar contribution From fiche of solar device	Collector size (in m ²) <input type="text"/> Tank volume (in m ³) <input type="text"/> Collector efficiency (in %) <input type="text"/> Tank rating: A* = 0,95, A = 0,91, B = 0,86, C = 0,83, D-G = 0,81	$(\text{'III' } \times \text{ } + \text{'IV' } \times \text{ }) \times 0,7 \times (\text{ } / 100) \times \text{ } =$ + <input type="text"/> %																														
Seasonal space heating energy efficiency of package		⁵ <input type="text"/> %																														
Seasonal space heating energy efficiency class of package																																
<table border="1"> <tr> <td><input type="checkbox"/></td> </tr> <tr> <td>G</td> <td>F</td> <td>E</td> <td>D</td> <td>C</td> <td>B</td> <td>A</td> <td>A⁺</td> <td>A⁺⁺</td> <td>A⁺⁺⁺</td> </tr> <tr> <td>< 30%</td> <td>≥ 30%</td> <td>≥ 34%</td> <td>≥ 36%</td> <td>≥ 75%</td> <td>≥ 82%</td> <td>≥ 90%</td> <td>≥ 98%</td> <td>≥ 125%</td> <td>≥ 150%</td> </tr> </table>			<input type="checkbox"/>	G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺	< 30%	≥ 30%	≥ 34%	≥ 36%	≥ 75%	≥ 82%	≥ 90%	≥ 98%	≥ 125%	≥ 150%									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																							
G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺																							
< 30%	≥ 30%	≥ 34%	≥ 36%	≥ 75%	≥ 82%	≥ 90%	≥ 98%	≥ 125%	≥ 150%																							

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

Figure 3: For preferential heat pump space heaters and preferential heat pump combination heaters, element of the fiche for a package of space heater, temperature control and solar device and a package of combination heater, temperature control, solar device and passive flue heat recovery device, respectively, indicating the seasonal space heating energy efficiency of the package offered

Seasonal space heating energy efficiency of heat pump ① %

Temperature control
 From fiche of temperature control ② %

Class I = 1 %, Class II = 2 %, Class III = 1,5 %,
 Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

Supplementary boiler
 From fiche of boiler ③ %

Seasonal space heating energy efficiency (in %)

$$(\text{input} - 'I') \times 'II' = - \text{input} \%$$

Solar contribution
 From fiche of solar device ④ %

Collector size (in m²)

Tank volume (in m³)

Collector efficiency (in %)

Tank rating
 A⁺ = 0,95, A = 0,91,
 B = 0,86, C = 0,83,
 D-G = 0,81

$$('III' \times \text{input} + 'IV' \times \text{input}) \times 0,45 \times (\text{input}/100) \times \text{input} = + \text{input} \%$$

Seasonal space heating energy efficiency of package under average climate ⑤ %

Seasonal space heating energy efficiency class of package under average climate

<input type="checkbox"/>									
G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %

Seasonal space heating energy efficiency under colder and warmer climate conditions

Colder: ⑤ - 'V' = % Warmer: ⑤ + 'VI' = %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

Figure 4: For preferential low-temperature heat pumps, element of the fiche for a package of space heater, temperature control and solar device indicating the seasonal space heating energy efficiency of the package offered

Seasonal space heating energy efficiency of low temperature heat pump ① %

Temperature control
From fiche of temperature control

Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 %

+ % ②

Supplementary boiler
From fiche of boiler

Seasonal space heating energy efficiency (in %)

(- 'I') × 'II' = - % ③

Solar contribution
From fiche of solar device

Collector size (in m²)

Tank volume (in m³)

Collector efficiency (in %)

Tank rating
A* = 0,95, A = 0,91,
B = 0,86, C = 0,83,
D-G = 0,81

('III' × + 'IV' ×) × 0,45 × (/ 100) × = + % ④

Seasonal space heating energy efficiency of package under average climate ⑤ %

Seasonal space heating energy efficiency class of package under average climate

□	□	□	□	□	□	□	□	□	□
G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
< 55%	≥ 55%	≥ 59%	≥ 61%	≥ 100%	≥ 107%	≥ 115%	≥ 123%	≥ 150%	≥ 175%

Seasonal space heating energy efficiency under colder and warmer climate conditions

Colder: ⑤ - 'V' = % Warmer: + 'VI' = %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

Figure 5: For preferential boiler combination heaters and preferential heat pump combination heaters, element of the fiche for a package of combination heater, temperature control, solar device and passive flue heat recovery device indicating the water heating energy efficiency of the package offered

Water heating energy efficiency of combination heater ① %

Declared load profile:

Solar contribution
From fiche of solar device

Auxiliary electricity

$(1,1 \times 'I' - 10\%) \times 'II' - 'III' - 'I' = +$ ② %

Heat recovery contribution ③ %
From fiche of passive flue heat recovery device

Water heating energy efficiency of package under average climate ④ %

Water heating energy efficiency class of package under average climate

	G	F	E	D	C	B	A	A*	A**	A***
M	<27%	≥27%	≥30%	≥33%	≥36%	≥45%	≥65%	≥100%	≥130%	≥163%
L	<27%	≥27%	≥30%	≥34%	≥37%	≥50%	≥75%	≥115%	≥150%	≥188%
XL	<27%	≥27%	≥30%	≥35%	≥38%	≥55%	≥80%	≥123%	≥160%	≥200%
XXL	<28%	≥28%	≥32%	≥36%	≥40%	≥60%	≥85%	≥131%	≥170%	≥213%
3XL	<28%	≥28%	≥32%	≥36%	≥40%	≥64%	≥90%	≥138%	≥180%	≥225%
4XL	<28%	≥28%	≥32%	≥36%	≥40%	≥64%	≥95%	≥146%	≥190%	≥238%

Water heating energy efficiency under colder and warmer climate conditions

Colder: $\text{④} - 0,2 \times \text{②} = \text{⑤} \%$

Warmer: $\text{④} + 0,4 \times \text{②} = \text{⑥} \%$

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

ANNEX V

Technical documentation

1. Space heaters

For space heaters, the technical documentation referred to in Article 3(1)(c) shall include:

- (a) the name and address of the supplier;
- (b) a description of the space heater model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) technical parameters:
 - for boiler space heaters and cogeneration space heaters, the technical parameters set out in Table 8, measured and calculated in accordance with Annex VII;
 - for heat pump space heaters, the technical parameters set out in Table 9, measured and calculated in accordance with Annex VII;
 - for heat pump space heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model;
- (g) any specific precautions that shall be taken when the space heater is assembled, installed or maintained.

2. Combination heaters

For combination heaters, the technical documentation referred to in Article 3(2)(c) shall include:

- (a) the name and address of the supplier;
- (b) a description of the combination heater model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;

- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) technical parameters:
 - for boiler combination heaters, the technical parameters set out in Table 8, measured and calculated in accordance with Annex VII;
 - for heat pump combination heaters, the technical parameters set out in Table 9, measured and calculated in accordance with Annex VII;
 - for heat pump combination heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model;
- (g) any specific precautions that shall be taken when the combination heater is assembled, installed or maintained.

Table 8: Technical parameters for boiler space heaters, boiler combination heaters and cogeneration space heaters

Model(s): [information identifying the model(s) to which the information relates]			
Condensing boiler: [yes/no]			
Low-temperature** boiler: [yes/no]			
B11 boiler: [yes/no]			
Cogeneration space heater: [yes/no]		If yes, equipped with a supplementary heater: [yes/no]	
Combination heater: [yes/no]			
Item	Symbol	Value	Unit
Rated heat output	P_{rated}	x,x	kW
For boiler space heaters and boiler combination heaters: Useful heat output			
At rated heat output and high-temperature regime*	P_4	x,x	kW
At 30 % of rated heat output and low-temperature regime**	P_1	x,x	kW
For cogeneration space heaters: Useful heat output			
At rated heat output of cogeneration space heater with supplementary heater disabled	$P_{CHP100+Su\ p0}$	x,x	kW
At rated heat output of cogeneration space heater with supplementary heater enabled	$P_{CHP100+Su\ p100}$	x,x	kW
For cogeneration space heaters: Electrical efficiency			
At rated heat output of cogeneration space heater with supplementary heater disabled	$\bullet_{el,CHP100+Sup0}$	x,x	%
At rated heat output of cogeneration space heater with supplementary heater enabled	$\bullet_{el,CHP100+Sup100}$	x,x	%
Auxiliary electricity consumption			
At full load	el_{max}	x,x	kW
At part load	el_{min}	x,x	kW
In standby mode	P_{SB}	x,x	kW
For combination heaters:			
Declared load profile			
Daily electricity consumption	Q_{elec}	x,xxx	kWh
Annual electricity consumption	AEC	x	kWh
Water heating energy efficiency			
	\bullet_{wh}	x,x	%
Daily fuel consumption	Q_{fuel}	x,xxx	kWh
Annual fuel consumption	AFC	x	GJ
Contact details			
Name and address of the supplier.			
* High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.			
** Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).			

Table 9: Technical parameters for heat pump space heaters and heat pump combination heaters

Model(s): [information identifying the model(s) to which the information relates]			
Air-to-water heat pump: [yes/no]			
Water-to-water heat pump: [yes/no]			
Brine-to-water heat pump: [yes/no]			
Low-temperature heat pump: [yes/no]			
Equipped with a supplementary heater: [yes/no]			
Heat pump combination heater: [yes/no]			
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.			
Parameters shall be declared for average, colder and warmer climate conditions.			
Item	Symbol	Value	Unit
Rated heat output*	<i>Prated</i>	x,x	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = - 7^{\circ}\text{C}$	<i>Pdh</i>	x,x	kW
$T_j = + 2^{\circ}\text{C}$	<i>Pdh</i>	x,x	kW
$T_j = + 7^{\circ}\text{C}$	<i>Pdh</i>	x,x	kW
$T_j = + 12^{\circ}\text{C}$	<i>Pdh</i>	x,x	kW
$T_j =$ bivalent temperature	<i>Pdh</i>	x,x	kW
$T_j =$ operation limit	<i>Pdh</i>	x,x	kW
For air-to-water heat pumps: $T_j = - 15^{\circ}\text{C}$ (if $TOL < - 20^{\circ}\text{C}$)	<i>Pdh</i>	x,x	kW
Bivalent temperature	T_{biv}	x	°C
Cycling interval capacity for heating	<i>Pcyc</i>	x,x	kW
Degradation co-efficient**	<i>Cdh</i>	x,x	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	x,x	kW
Thermostat-off mode	P_{TO}	x,x	kW
Standby mode	P_{SB}	x,x	kW
Crankcase heater mode	P_{CK}	x,x	kW
Other items			
Capacity control	fixed/variable		
Sound power level, indoors/outdoors	L_{WA}	x,x / x,x	dB
Annual energy consumption	Q_{HE}	x	kWh or GJ
For heat pump combination heater:			
Declared load profile	x		
Daily electricity consumption	Q_{elec}	x,xxx	kWh
Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	\bullet_s	x,x	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = - 7^{\circ}\text{C}$	<i>COPd or PERd</i>	x,x	%
$T_j = + 2^{\circ}\text{C}$	<i>COPd or PERd</i>	x,x	%
$T_j = + 7^{\circ}\text{C}$	<i>COPd or PERd</i>	x,x	%
$T_j = + 12^{\circ}\text{C}$	<i>COPd or PERd</i>	x,x	%
$T_j =$ bivalent temperature	<i>COPd or PERd</i>	x,x	%
$T_j =$ operation limit	<i>COPd or PERd</i>	x,x	%
For air-to-water heat pumps: $T_j = - 15^{\circ}\text{C}$ (if $TOL < - 20^{\circ}\text{C}$)	<i>COPd or PERd</i>	x,x	%
For air-to-water heat pumps: Operation limit temperature	<i>TOL</i>	x	°C
Cycling interval efficiency	<i>COPcyc or PERcyc</i>	x,x	%
Heating water operating limit temperature	<i>WTOL</i>	x	°C
Supplementary heater			
Rated heat output*	<i>Psup</i>	x,x	kW
Type of energy input			
For air-to-water heat pumps: Rated air flow rate, outdoors	-	x	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	x	m ³ /h
Water heating energy efficiency	\bullet_{wh}	x,x	%
Daily fuel consumption	Q_{fuel}	x,xxx	kWh

Annual electricity consumption	<i>AEC</i>	x	kWh		Annual fuel consumption	<i>AFC</i>	x	GJ
Contact details	Name and address of the supplier.							
* For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.								
** If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$.								

3. Temperature controls

For temperature controls, the technical documentation referred to in Article 3(3)(b) shall include:

- (a) the name and address of the supplier;
- (b) a description of the temperature control model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) technical parameters:
 - the class of the temperature control;
 - the contribution of the temperature control to seasonal space heating energy efficiency in %, rounded to one decimal place;
- (g) any specific precautions that shall be taken when the temperature control is assembled, installed or maintained.

4. Solar devices

For solar devices, the technical documentation referred to in Article 3(4)(b) shall include:

- (a) the name and address of the supplier;
- (b) a description of the solar device model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) technical parameters:
 - the collector aperture area A_{sol} in m^2 , to two decimal places;
 - the collector efficiency η_{col} in %, rounded to the nearest integer;
 - the energy efficiency class of the solar hot water storage tank, determined in accordance with point 3 of Annex II;
 - the standing loss S of the solar hot water storage tank in W, rounded to the nearest integer;

- the storage volume V of the solar hot water storage tank in litres and m^3 ;
 - the annual non-solar heat contribution Q_{nonsol} in kWh in terms of primary energy for electricity and/or in kWh in terms of GCV for fuels, for the load profiles M, L, XL, XXL, 3XL and 4XL under average climate conditions, rounded to the nearest integer;
 - the pump power consumption sol_{pump} in W, rounded to the nearest integer;
 - the standby power consumption $sol_{standby}$ in W, to two decimal places;
 - the annual auxiliary electricity consumption Q_{aux} in kWh in terms of final energy, rounded to the nearest integer;
- (g) any specific precautions that shall be taken when the solar device is assembled, installed or maintained.

5. Passive flue heat recovery devices

For passive flue heat recovery devices, the technical documentation referred to in Article 3(5)(b) shall include:

- (a) the name and address of the supplier;
- (b) a description of the passive flue heat recovery device model sufficient for its unambiguous identification;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) technical parameters:
 - the combination heater models for which the passive flue heat recovery device was tested;
 - the contribution of the passive flue heat recovery device to water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 7 of Annex VII;
- (g) any specific precautions that shall be taken when the passive flue heat recovery device is assembled, installed or maintained.

ANNEX VI

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

1. Space heaters
 - 1.1. The information referred to in Article 4(1)(b) shall be provided in the following order:
 - (a) the seasonal space heating energy efficiency class of the model, determined in accordance with point 1 of Annex II;
 - (b) the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer (for heat pump space heaters, under average climate conditions);
 - (c) the seasonal space heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump space heaters, under average climate conditions);
 - (d) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump space heaters, under average climate conditions);
 - (e) the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer (for heat pump space heaters if applicable);

in addition, for cogeneration space heaters:

 - (f) the electrical efficiency in %, rounded to the nearest integer;

in addition, for heat pump space heaters:

 - (g) the rated heat output, including the rated heat output of any supplementary heater, in kW, under colder and warmer climate conditions, rounded to the nearest integer;
 - (h) the seasonal space heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;
 - (i) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;
 - (j) the sound power level L_{WA} , outdoors, in dB, rounded to the nearest integer;

in addition, for low-temperature heat pumps:

 - (k) an indication that the low-temperature heat pump is only suitable for low-temperature application;

1.2. The size and font in which the information referred in point 1.1 is printed or shown shall be legible.

2. Combination heaters

2.1. The information referred to in Article 4(2)(b) shall be provided in the following order:

- (a) for space heating, the medium-temperature application; for water heating, the declared load profile, expressed as the appropriate letter and typical usage in accordance with Table 16 of Annex VII;
- (b) the seasonal space heating energy efficiency class and the water heating energy efficiency class of the model, determined in accordance with points 1 and 2 of Annex II;
- (c) the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer (for heat pump combination heaters, under average climate conditions);
- (d) for space heating, the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump combination heaters, under average climate conditions); for water heating, the annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of *GCV*, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII (for heat pump combination heaters, under average climate conditions);
- (e) the seasonal space heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump combination heaters, under average climate conditions); the water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII (for heat pump combination heaters, under average climate conditions);
- (f) the sound power level L_{WA} , indoors, in dB, rounded to the nearest integer (for heat pump combination heaters if applicable);
- (g) if applicable, an indication that the combination heater is able to work only during off-peak hours;

in addition, for heat pump combination heaters:

- (h) the rated heat output, including the rated heat output of any supplementary heater, in kW, under colder and warmer climate conditions, rounded to the nearest integer;
- (i) for space heating, the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of *GCV*, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII; for water heating, the annual electricity consumption in

kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of *GCV*, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;

- (j) the seasonal space heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII; the water heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 5 of Annex VII;
- (k) the sound power level L_{WA} , outdoors, in dB, rounded to the nearest integer.

2.2. The size and font in which the information referred in point 2.1 is printed or shown shall be legible.

ANNEX VII

Measurements and calculations

1. For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published for this purpose in the *Official Journal of the European Union*, or using other reliable, accurate and reproducible methods that take into account the generally recognised state-of-the-art methods. They shall meet the conditions and technical parameters set out in points 2 to 7.
2. General conditions for measurements and calculations
 - (a) For the purposes of the measurements set out in points 3 to 7, the indoor ambient temperature shall be set at 20°C.
 - (b) For the purposes of the calculations set out in points 3 to 7, electricity consumption shall be multiplied by a conversion coefficient CC of 2,5, unless the annual electricity consumption is expressed in final energy for the end-user, as set out in points 3(b), 4(g), 5(e) and 6.
 - (c) For heaters equipped with supplementary heaters, the measurement and calculation of rated heat output, seasonal space heating energy efficiency, water heating energy efficiency, sound power level and emissions of nitrogen oxides shall take account of the supplementary heater.
 - (d) Declared values for rated heat output, seasonal space heating energy efficiency, water heating energy efficiency, annual energy consumption and sound power level shall be rounded to the nearest integer.
3. Seasonal space heating energy efficiency and consumption of boiler space heaters, boiler combination heaters and cogeneration space heaters
 - (a) The seasonal space heating energy efficiency η_s shall be calculated as the seasonal space heating energy efficiency in active mode η_{son} , corrected by contributions accounting for temperature controls, auxiliary electricity consumption, standby heat loss, ignition burner power consumption (if applicable) and, for cogeneration space heaters, the electrical efficiency multiplied by a conversion coefficient CC of 2,5.
 - (b) The annual energy consumption Q_{HE} in kWh in terms of final energy and/or in GJ in terms of GCV shall be calculated as the ratio of the reference annual heating demand and the seasonal space heating energy efficiency.
4. Seasonal space heating energy efficiency and consumption of heat pump space heaters and heat pump combination heaters
 - (a) For establishing the rated coefficient of performance COP_{rated} or rated primary energy ratio PER_{rated} , or the sound power level, the operating conditions shall be the standard rating conditions set out in Table 10 and the same declared capacity for heating shall be used.

- (b) The active mode coefficient of performance $SCOP_{on}$ for average, colder and warmer climate conditions shall be calculated on the basis of the part load for heating $Ph(T_j)$, the supplementary capacity for heating $sup(T_j)$ (if applicable), and the bin-specific coefficient of performance $COP_{bin}(T_j)$ or bin-specific primary energy ratio $PER_{bin}(T_j)$, weighted by the bin-hours for which the bin conditions apply, using the following conditions:
- the reference design conditions set out in Table 11;
 - the European reference heating season under average, colder and warmer climate conditions set out in Table 13;
 - if applicable, the effects of any degradation of energy efficiency caused by cycling, depending on the type of control of the heating capacity.
- (c) The reference annual heating demand Q_H shall be the design load for heating $P_{designh}$ for average, colder and warmer climate conditions, multiplied by the annual equivalent active mode hours H_{HE} of 2066, 2465 and 1336 for average, colder and warmer climate conditions, respectively.
- (d) The annual energy consumption Q_{HE} shall be calculated as the sum of:
- the ratio of the reference annual heating demand Q_H and the active mode coefficient of performance $SCOP_{on}$ or active mode primary energy ratio $SPER_{on}$ and
 - the energy consumption for off, thermostat-off, standby, and crankcase heater mode during the heating season.
- (e) The seasonal coefficient of performance $SCOP$ or seasonal primary energy ratio $SPER$ shall be calculated as the ratio of the reference annual heating demand Q_H and the annual energy consumption Q_{HE} .
- (f) The seasonal space heating energy efficiency \bullet_s shall be calculated as the seasonal coefficient of performance $SCOP$ divided by the conversion coefficient CC or the seasonal primary energy ratio $SPER$, corrected by contributions accounting for temperature controls and, for water-/brine-to-water heat pump space heaters and heat pump combination heaters, the electricity consumption of one or more ground water pumps.
- (g) The annual energy consumption Q_{HE} in kWh in terms of final energy and/or GJ in terms of GCV shall be calculated as the ratio of the reference annual heating demand Q_H and the seasonal space heating energy efficiency \bullet_s .

5. Water heating energy efficiency of combination heaters

The water heating energy efficiency \bullet_{wh} of a combination heater shall be calculated as the ratio between the reference energy Q_{ref} and the energy required for its generation under the following conditions:

- (a) measurements shall be carried out using the load profiles set out in Table 16;

- (b) measurements shall be carried out using a 24-hour measurement cycle as follows:
 - 00:00 to 06:59: no water draw-off;
 - from 07:00: water draw-offs according to the declared load profile;
 - from end of last water draw-off until 24:00: no water draw-off;
- (c) the declared load profile shall be the maximum load profile or the load profile one below the maximum load profile;
- (d) for heat pump combination heaters, the following additional conditions apply:
 - heat pump combination heaters shall be tested under the conditions set out in Table 10;
 - heat pump combination heaters which use ventilation exhaust air as the heat source shall be tested under the conditions set out in Table 12;
- (e) the annual electricity consumption AEC in kWh in terms of final energy shall be calculated as daily electricity consumption Q_{elec} in kWh in terms of final energy multiplied by 220;
- (f) the annual fuel consumption AFC in GJ in terms of GCV shall be calculated as daily fuel consumption Q_{fuel} multiplied by 220.

6. Conditions for measurements and calculations of solar devices

The solar collector, solar hot water storage tank and pump in the collector loop (if applicable) shall be tested separately. Where the solar collector and solar hot water storage tank cannot be tested separately, they shall be tested in combination.

The results shall be used for the determination of the standing loss S and the calculations of the collector efficiency \bullet_{col} , the annual non-solar heat contribution Q_{nonsol} for the load profiles M, L, XL, XXL, 3XL and 4XL under the average climate conditions set out in Tables 14 and 15, and the annual auxiliary electricity consumption Q_{aux} in kWh in terms of final energy.

7. Conditions for calculations of passive flue heat recovery devices

The contribution of a passive flue heat recovery device to the water heating energy efficiency of a package of combination heater, temperature control, solar device and passive flue heat recovery device shall be calculated as the difference between the annual reference energy Q_{ref} divided by the annual energy required by the combination heater for its generation, corrected by the annual heat recovery contribution of the passive flue heat recovery device, and the annual reference energy Q_{ref} divided by the annual energy required by the combination heater for its generation.

Table 10: Standard rating conditions for heat pump space heaters and heat pump combination heaters

Heat source	Outdoor heat exchanger		Indoor heat exchanger			
	Climate condition	Inlet dry bulb (wet bulb) temperature	Heat pump space heaters and heat pump combination heaters, except low-temperature heat pumps		Low-temperature heat pumps	
			Inlet temperature	Outlet temperature	Inlet temperature	Outlet temperature
Outdoor air	Average	+ 7 °C (+ 6 °C)	+ 47 °C	+ 55 °C	+ 30 °C	+ 35 °C
	Colder	+ 2 °C (+ 1 °C)				
	Warmer	+ 14 °C (+ 13 °C)				
Exhaust air	All	+ 20 °C (+ 12 °C)				
		Inlet / outlet temperature				
Water	All	+ 10 °C / + 7 °C				
Brine	All	0 °C/ - 3 °C				

Table 11: Reference design conditions for heat pump space heaters and heat pump combination heaters, temperatures in dry bulb air temperature (wet bulb air temperature indicated in brackets)

Climate condition	Reference design temperature	Bivalent temperature	Operation limit temperature
	$T_{designh}$	T_{biv}	TOL
Average	- 10 (- 11) °C	maximum + 2 °C	maximum - 7 °C
Colder	- 22 (- 23) °C	maximum - 7 °C	maximum - 15 °C
Warmer	+ 2 (+ 1) °C	maximum + 7 °C	maximum + 2 °C

Table 12: Maximum ventilation exhaust air available [m^3/h], with humidity of 5,5 g/m^3

Declared load profile	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Maximum ventilation exhaust air available	109	128	128	159	190	870	1021	2943	8830

Table 13: European reference heating season under average, colder and warmer climate conditions for heat pump space heaters and heat pump combination heaters

<i>bin_j</i>	<i>T_j</i> [°C]	Average climate conditions	Colder climate conditions	Warmer climate conditions
		<i>H_j</i> [h/annum]	<i>H_j</i> [h/annum]	<i>H_j</i> [h/annum]
1 to 8	-30 to -23	0	0	0
9	-22	0	1	0
10	-21	0	6	0
11	-20	0	13	0
12	-19	0	17	0
13	-18	0	19	0
14	-17	0	26	0
15	-16	0	39	0
16	-15	0	41	0
17	-14	0	35	0
18	-13	0	52	0
19	-12	0	37	0
20	-11	0	41	0
21	-10	1	43	0
22	-9	25	54	0
23	-8	23	90	0
24	-7	24	125	0
25	-6	27	169	0
26	-5	68	195	0
27	-4	91	278	0
28	-3	89	306	0
29	-2	165	454	0
30	-1	173	385	0
31	0	240	490	0
32	1	280	533	0
33	2	320	380	3
34	3	357	228	22
35	4	356	261	63
36	5	303	279	63
37	6	330	229	175
38	7	326	269	162
39	8	348	233	259
40	9	335	230	360
41	10	315	243	428
42	11	215	191	430
43	12	169	146	503
44	13	151	150	444
45	14	105	97	384
46	15	74	61	294
Total hours:		4910	6446	3 590

Table 14: Average daytime temperature [°C]

	January	February	March	April	May	June	July	August	September	October	November	December
Average climate conditions	+ 2,8	+ 2,6	+ 7,4	+ 12,2	+ 16,3	+ 19,8	+ 21,0	+ 22,0	+ 17,0	+ 11,9	+ 5,6	+ 3,2

Table 15: Average global solar irradiance [W/m²]

	January	February	March	April	May	June	July	August	September	October	November	December
Average climate conditions	70	104	149	192	221	222	232	217	176	129	80	56

Table 16: Water heating load profiles of combination heaters

h	3XS			XXS			XS			S			
	Q_{tap}	f	T_m	T_p									
	kWh	l/min	°C	°C									
07:00	0,015	2	25	0,105	2	25				0,105	3	25	
07:05	0,015	2	25										
07:15	0,015	2	25										
07:26	0,015	2	25										
07:30	0,015	2	25	0,105	2	25	0,525	3	35	0,105	3	25	
07:45													
08:01													
08:05													
08:15													
08:25													
08:30				0,105	2	25				0,105	3	25	
08:45													
09:00	0,015	2	25										
09:30	0,015	2	25	0,105	2	25				0,105	3	25	
10:00													
10:30													
11:00													
11:30	0,015	2	25	0,105	2	25				0,105	3	25	
11:45	0,015	2	25	0,105	2	25				0,105	3	25	
12:00	0,015	2	25	0,105	2	25							
12:30	0,015	2	25	0,105	2	25							
12:45	0,015	2	25	0,105	2	25	0,525	3	35	0,315	4	10	55
14:30	0,015	2	25										
15:00	0,015	2	25										
15:30	0,015	2	25										
16:00	0,015	2	25										
16:30													
17:00													
18:00				0,105	2	25				0,105	3	25	
18:15				0,105	2	25				0,105	3	40	
18:30	0,015	2	25	0,105	2	25							
19:00	0,015	2	25	0,105	2	25							
19:30	0,015	2	25	0,105	2	25							
20:00				0,105	2	25							
20:30							1,05	3	35	0,42	4	10	55
20:45				0,105	2	25							
20:46													
21:00				0,105	2	25							
21:15	0,015	2	25	0,105	2	25							
21:30	0,015	2	25							0,525	5	45	
21:35	0,015	2	25	0,105	2	25							
21:45	0,015	2	25	0,105	2	25							
Q_{ref}	0,345			2,100			2,100			2,100			

Continued Table 16: Water heating load profiles of combination heaters

h	M				L				XL			
	Q_{tap}	f	T_m	T_p	Q_{tap}	f	T_m	T_p	Q_{tap}	f	T_m	T_p
	kWh	l/mn	°C	°C	kWh	l/min	°C	°C	kWh	l/min	°C	°C
07:00	0,105	3	25		0,105	3	25		0,105	3	25	
07:05	1,4	6	40		1,4	6	40					
07:15									1,82	6	40	
07:26									0,105	3	25	
07:30	0,105	3	25		0,105	3	25					
07:45					0,105	3	25		4,42	10	10	40
08:01	0,105	3	25						0,105	3	25	
08:05					3,605	10	10	40				
08:15	0,105	3	25						0,105	3	25	
08:25					0,105	3	25					
08:30	0,105	3	25		0,105	3	25		0,105	3	25	
08:45	0,105	3	25		0,105	3	25		0,105	3	25	
09:00	0,105	3	25		0,105	3	25		0,105	3	25	
09:30	0,105	3	25		0,105	3	25		0,105	3	25	
10:00									0,105	3	25	
10:30	0,105	3	10	40	0,105	3	10	40	0,105	3	10	40
11:00									0,105	3	25	
11:30	0,105	3	25		0,105	3	25		0,105	3	25	
11:45	0,105	3	25		0,105	3	25		0,105	3	25	
12:00												
12:30												
12:45	0,315	4	10	55	0,315	4	10	55	0,735	4	10	55
14:30	0,105	3	25		0,105	3	25		0,105	3	25	
15:00									0,105	3	25	
15:30	0,105	3	25		0,105	3	25		0,105	3	25	
16:00									0,105	3	25	
16:30	0,105	3	25		0,105	3	25		0,105	3	25	
17:00									0,105	3	25	
18:00	0,105	3	25		0,105	3	25		0,105	3	25	
18:15	0,105	3	40		0,105	3	40		0,105	3	40	
18:30	0,105	3	40		0,105	3	40		0,105	3	40	
19:00	0,105	3	25		0,105	3	25		0,105	3	25	
19:30												
20:00												
20:30	0,735	4	10	55	0,735	4	10	55	0,735	4	10	55
20:45												
20:46									4,42	10	10	40
21:00					3,605	10	10	40				
21:15	0,105	3	25						0,105	3	25	
21:30	1,4	6	40		0,105	3	25		4,42	10	10	40
21:35												
21:45												
Q_{ref}	5,845				11,655				19,07			

Continued Table 16: Water heating load profiles of combination heaters

h	XXL				3XL				4XL			
	Q_{tap}	f	T_m	T_p	Q_{tap}	f	T_m	T_p	Q_{tap}	f	T_m	T_p
	kWh	l/min	°C	°C	kWh	l/min	°C	°C	kWh	l/min	°C	°C
07:00	0,105	3	25		11,2	48	40		22,4	96	40	
07:05												
07:15	1,82	6	40									
07:26	0,105	3	25									
07:30												
07:45	6,24	16	10	40								
08:01	0,105	3	25		5,04	24	25		10,08	48	25	
08:05												
08:15	0,105	3	25									
08:25												
08:30	0,105	3	25									
08:45	0,105	3	25									
09:00	0,105	3	25		1,68	24	25		3,36	48	25	
09:30	0,105	3	25									
10:00	0,105	3	25									
10:30	0,105	3	10	40	0,84	24	10	40	1,68	48	10	40
11:00	0,105	3	25									
11:30	0,105	3	25									
11:45	0,105	3	25		1,68	24	25		3,36	48	25	
12:00												
12:30												
12:45	0,735	4	10	55	2,52	32	10	55	5,04	64	10	55
14:30	0,105	3	25									
15:00	0,105	3	25									
15:30	0,105	3	25		2,52	24	25		5,04	48	25	
16:00	0,105	3	25									
16:30	0,105	3	25									
17:00	0,105	3	25									
18:00	0,105	3	25									
18:15	0,105	3	40									
18:30	0,105	3	40		3,36	24	25		6,72	48	25	
19:00	0,105	3	25									
19:30												
20:00												
20:30	0,735	4	10	55	5,88	32	10	55	11,76	64	10	55
20:45												
20:46	6,24	16	10	40								
21:00												
21:15	0,105	3	25									
21:30	6,24	16	10	40	12,04	48	40		24,08	96	40	
21:35												
21:45												
Q_{ref}	24,53				46,76				93,52			

ANNEX VIII

Verification procedure for market surveillance purposes

For the purposes of assessing the conformity with the requirements laid down in Articles 3 and 4, the authorities of the Member States shall apply the following verification procedure:

1. The Member State authorities shall test one single unit per heater, temperature control, solar device and passive flue heat recovery device model and provide the information on the test results to the authorities of the other Member States.
2. The model shall be considered to comply with the applicable requirements if:
 - (a) for heaters, the seasonal space heating energy efficiency \bullet_s is not more than 8 % lower than the declared value at the rated heat output of the unit;
 - (b) for combination heaters, the water heating energy efficiency \bullet_{wh} is not more than 8 % lower than the declared value at the rated heat output of the unit;
 - (c) for heaters, the sound power level L_{WA} is not more than 2 dB higher than the declared value;
 - (d) for temperature controls, the class of the temperature control complies with the declared class of the temperature control;
 - (e) for solar devices, the collector efficiency \bullet_{col} is not more than 5 % lower than the declared value;
 - (f) for solar devices, the standing loss S of the solar hot water storage tank is not more than 5 % higher than the declared value;
 - (g) for solar devices, the auxiliary electricity consumption Q_{aux} is not more than 5 % higher than the declared value; and
 - (h) for passive flue heat recovery devices, the contribution of the passive flue heat recovery device to water heating energy efficiency is not more than 5 % higher than the declared value.
3. If the result referred to in point 2 is not achieved, the Member State authorities shall randomly select three additional units of the same model for testing and provide the information on the test results to the authorities of the other Member States and to the Commission within one month of testing.
4. The model shall be considered to comply with the applicable requirements if:
 - (a) for heaters, the average of the three units for seasonal space heating energy efficiency \bullet_s is not more than 8 % lower than the declared value at the rated heat output of the unit;
 - (b) for combination heaters, the average of the three units for water heating energy efficiency \bullet_{wh} is not more than 8 % lower than the declared value at the rated heat output of the unit;

- (c) for heaters, the average of the three units for sound power level L_{WA} is not more than 2 dB higher than the declared value;
 - (d) for temperature controls, the class of the temperature control of the three units complies with the declared class of the temperature control;
 - (e) for solar devices, the average of the three units for collector efficiency η_{col} is not more than 5 % lower than the declared value;
 - (f) for solar devices, the average of the three units for standing loss S of the solar hot water storage tank is not more than 5 % higher than the declared value;
 - (g) for solar devices, the average of the three units for auxiliary electricity consumption Q_{aux} is not more than 5 % higher than the declared value; and
 - (h) for passive flue heat recovery devices, the average of the three units for the contribution of the passive flue heat recovery device to water heating energy efficiency is not more than 5 % higher than the declared value.
5. If the results referred to in point 4 are not achieved, the model shall be considered not to comply with this Regulation.

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