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► B **COMMISSION DELEGATED REGULATION (EU) No 874/2012**
of 12 July 2012
supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to
energy labelling of electrical lamps and luminaires
 (Text with EEA relevance)
 (OJ L 258, 26.9.2012, p. 1)

Amended by:

		Official Journal		
		No	page	date
► <u>M1</u>	Commission Delegated Regulation (EU) No 518/2014 of 5 March 2014	L 147	1	17.5.2014
► <u>M2</u>	Commission Delegated Regulation (EU) 2017/254 of 30 November 2016	L 38	1	15.2.2017
► <u>M3</u>	Commission Delegated Regulation (EU) 2019/2015 of 11 March 2019	L 315	68	5.12.2019
► <u>M4</u>	Commission Delegated Regulation (EU) 2020/1059 of 27 April 2020	L 232	28	20.7.2020

Corrected by:

- C1 Corrigendum, OJ L 198, 28.7.2015, p. 31 (874/2012)



COMMISSION DELEGATED REGULATION (EU) No 874/2012
of 12 July 2012
supplementing Directive 2010/30/EU of the European Parliament
and of the Council with regard to energy labelling of electrical
lamps and luminaires

(Text with EEA relevance)

Article 1

Subject matter and scope

1. This Regulation establishes requirements for labelling of and providing supplementary product information on electrical lamps such as:

- (a) filament lamps;
- (b) fluorescent lamps;
- (c) high-intensity discharge lamps;
- (d) LED lamps and LED modules.

This Regulation also establishes requirements for labelling luminaires designed to operate such lamps and marketed to end users, including when they are integrated into other products that are not dependent on energy input in fulfilling their primary purpose during use (such as furniture).

2. The following products shall be excluded from the scope of this Regulation:

- (a) lamps and LED modules with a luminous flux of less than 30 lumens;
- (b) lamps and LED modules marketed for operation with batteries;
- (c) lamps and LED modules marketed for applications where their primary purpose is not lighting, such as:
 - (i) emission of light as an agent in chemical or biological processes (such as polymerisation, photodynamic therapy, horticulture, petcare, anti-insect products);
 - (ii) image capture and image projection (such as camera flash-lights, photocopiers, video projectors);
 - (iii) heating (such as infrared lamps);
 - (iv) signalling (such as airfield lamps).

These lamps and LED modules are not excluded when they are marketed for lighting;

- (d) lamps and LED modules marketed as part of a luminaire and not intended to be removed by the end-user, except when they are offered for sale, hire or hire purchase or displayed separately to the end user, for example as spare parts;

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- (e) lamps and LED modules marketed as part of a product whose primary purpose is not lighting. However, if they are offered for sale, hire or hire purchase or displayed separately, for example as spare parts, they shall be included within the scope of this Regulation;
- (f) lamps and LED modules that do not comply with requirements becoming applicable in 2013 and 2014 according to Regulations implementing Directive 2009/125/EC of the European Parliament and of the Council ⁽¹⁾;
- (g) luminaires that are designed to operate exclusively with the lamps and LED modules ► **C1** listed in points (a), (b), (c) and (e). ◀

*Article 2***Definitions**

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

- (1) ‘Light source’ means a surface or object designed to emit mainly visible optical radiation produced by a transformation of energy. The term ‘visible’ refers to a wavelength of 380-780 nm;
- (2) ‘Lighting’ means the application of light to a scene, objects or their surroundings so that they may be seen by humans;
- (3) ‘Accent lighting’ means a form of lighting where light is directed so as to highlight an object or a part of an area;
- (4) ‘Lamp’ means a unit whose performance can be assessed independently and which consists of one or more light sources. It may include additional components necessary for starting, power supply or stable operation of the unit or for distributing, filtering or transforming the optical radiation, in cases where those components cannot be removed without permanently damaging the unit;
- (5) ‘Lamp cap’ means that part of a lamp which provides connection to the electrical supply by means of a lamp holder or lamp connector and may also serve to retain the lamp in the lamp holder;
- (6) ‘Lamp holder’ or ‘socket’ means a device which holds the lamp in position, usually by having the cap inserted in it, in which case it also provides the means of connecting the lamp to the electric supply;
- (7) ‘Directional lamp’ means a lamp having at least 80 % light output within a solid angle of π sr (corresponding to a cone with angle of 120°);
- (8) ‘Non-directional lamp’ means a lamp that is not a directional lamp;
- (9) ‘Filament lamp’ means a lamp in which light is produced by means of a threadlike conductor which is heated to incandescence by the passage of an electric current. The lamp may contain gases influencing the process of incandescence;

⁽¹⁾ OJ L 285, 31.10.2009, p. 10.

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- (10) ‘Incandescent lamp’ means a filament lamp in which the filament operates in an evacuated bulb or is surrounded by inert gas;
- (11) ‘(Tungsten) halogen lamp’ means a filament lamp in which the filament is made of tungsten and is surrounded by gas containing halogens or halogen compounds. They may be supplied with an integrated power supply;
- (12) ‘Discharge lamp’ means a lamp in which the light is produced, directly or indirectly, by an electric discharge through a gas, a metal vapour or a mixture of several gases and vapours;
- (13) ‘Fluorescent lamp’ means a discharge lamp of the low pressure mercury type in which most of the light is emitted by one or more layers of phosphors excited by the ultraviolet radiation from the discharge. Fluorescent lamps may be supplied with an integrated ballast;
- (14) ‘Fluorescent lamp without integrated ballast’ means a single- or double-capped fluorescent lamp without integrated ballast;
- (15) ‘High-intensity discharge lamp’ means an electric discharge lamp in which the light producing arc is stabilised by wall temperature and the arc has a bulb wall loading in excess of 3 watts per square centimetre;
- (16) ‘Light-emitting diode (LED)’ means a light source which consists of a solid state device embodying a p-n junction. The junction emits optical radiation when excited by an electric current;
- (17) ‘LED package’ means an assembly having one or more LED(s). The assembly may include an optical element and thermal, mechanical and electrical interfaces;
- (18) ‘LED module’ means an assembly having no cap and incorporating one or more LED packages on a printed circuit board. The assembly may have electrical, optical, mechanical and thermal components, interfaces and control gear;
- (19) ‘LED lamp’ means a lamp incorporating one or more LED modules. The lamp may be equipped with a cap;
- (20) ‘Lamp control gear’ means a device located between the electrical supply and one or more lamps, which provides a functionality related to the operation of the lamp(s), such as transforming the supply voltage, limiting the current of the lamp(s) to the required value, providing a starting voltage and preheating current, preventing cold starting, correcting the power factor or reducing radio interference. The device may be designed to connect to other lamp control gear to perform these functions. The term does not include:
 - control devices,
 - power supplies converting the mains voltage to another supply voltage that are designed to supply in the same installation both lighting products and products whose primary purpose is not lighting;

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- (21) ‘Control device’ means an electronic or mechanical device controlling or monitoring the luminous flux of the lamp by other means than power conversion for the lamp, such as timer switches, occupancy sensors, light sensors and daylight regulation devices. In addition, phase cut dimmers shall also be considered as control devices;
- (22) ‘External lamp control gear’ means non-integrated lamp control gear designed to be installed outside the enclosure of a lamp or luminaire, or to be removed from the enclosure without permanently damaging the lamp or the luminaire;
- (23) ‘Ballast’ means lamp control gear inserted between the supply and one or more discharge lamps which by means of inductance, capacitance or a combination of inductance and capacitance, serves mainly to limit the current of the lamp(s) to the required value;
- (24) ‘Halogen lamp control gear’ means lamp control gear that transforms mains voltage to extra low voltage for halogen lamps;
- (25) ‘Compact fluorescent lamp’ means a fluorescent lamp that includes all the components necessary for starting and stable operation of the lamp;
- (26) ‘Luminaire’ means an apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes all the parts necessary for supporting, fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply;
- (27) ‘Point of sale’ means a physical location where the product is displayed or offered for sale, hire or hire-purchase to the end-user;
- (28) ‘End-user’ means a natural person buying or expected to buy an electrical lamp or luminaire for purposes which are outside his trade, business, craft or profession;
- (29) ‘Final owner’ means the person or entity owning a product during the use phase of its life cycle, or any person or entity acting on behalf of such a person or entity.

*Article 3***Responsibilities of suppliers**

1. Suppliers of electrical lamps placed on the market as individual products shall ensure that:
 - (a) a product fiche, as set out in Annex II, is made available;
 - (b) the technical documentation as set out in Annex III is made available on request to the authorities of the Member States and to the Commission;

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- (c) any advertisement, formal price quote or tender offer disclosing energy-related or price information for a specific lamp states the energy efficiency class;
- (d) any technical promotional material concerning a specific lamp which describes its specific technical parameters states the energy efficiency class of that lamp;
- (e) if the lamp is intended to be marketed through a point of sale, a label produced in the format and containing information as set out in Annex I.1 is placed or printed on, or attached to, the outside of the individual packaging, and the packaging displays the nominal power of the lamp outside the label;

▼ M1

- (f) an electronic label in the format and containing the information set out in point 1 of Annex I is made available to dealers for each lamp model placed on the market from 1 January 2015 with a new model identifier. It may also be made available to dealers for other lamp models.

▼ M3

▼ B*Article 4***Responsibilities of dealers**

1. Dealers of electrical lamps shall ensure that:

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- (a) each model offered for sale, hire or hire-purchase where the final owner cannot be expected to see the product displayed is marketed with the information to be provided by suppliers in accordance with Annex IV. Where the offer is made through the internet and an electronic label has been made available in accordance with Article 3(1)(f) the provisions in Annex VIII shall apply instead;

▼ B

- (b) any advertisement, formal price quote or tender offer disclosing energy-related or price information for a specific model states the energy efficiency class;
- (c) any technical promotional material concerning a specific model which describes its specific technical parameters states the energy efficiency class of that model.

▼ M3

▼ B*Article 5***Measurement methods**

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

▼B*Article 6***Verification procedure for market surveillance purposes**

Member States shall apply the procedure laid down in Annex V when assessing the conformity of the declared energy efficiency class and energy consumption.

*Article 7***Revision**

The Commission shall review this Regulation in the light of technological progress no later than three years after its entry into force. The review shall in particular assess the verification tolerances set out in Annex V.

*Article 8***Repeal**

Directive 98/11/EC shall be repealed with effect from 1 September 2013.

References to Directive 98/11/EC shall be construed as references to this Regulation. References to Annex IV to Directive 98/11/EC shall be construed as references to Annex VI to this Regulation.

*Article 9***Transitional provisions**

1. Articles 3(2) and 4(2) shall not apply to luminaires before 1 March 2014.
2. Article 3(1)(c-d) and Article 4(1)(a-c) shall not apply to printed advertisements and printed technical promotional material published before 1 March 2014.
3. Lamps referred to in Article 1(1) and (2) of Directive 98/11/EC placed on the market before 1 September 2013 shall comply with the provisions set out in Directive 98/11/EC.
4. Lamps referred to in Article 1(1) and (2) of Directive 98/11/EC which comply with the provisions of this Regulation and which are placed on the market or offered for sale, hire or hire-purchase before 1 September 2013 shall be regarded as complying with the requirements of Directive 98/11/EC.

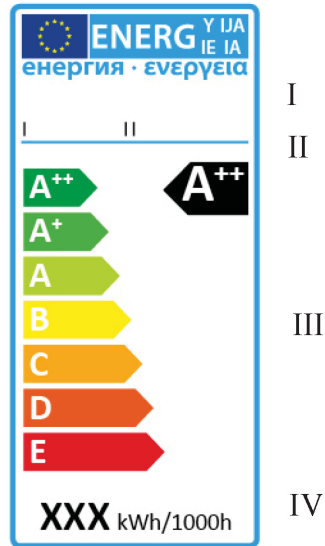
*Article 10***Entry into force and application**

1. This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.
2. It shall apply from 1 September 2013, except in the cases listed in Article 9.

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

▼ B*ANNEX I***Label****1. LABEL FOR ELECTRICAL LAMPS PRESENTED AT A POINT OF SALE**

- (1) The label shall be as in the following illustration if it is not printed on the packaging:

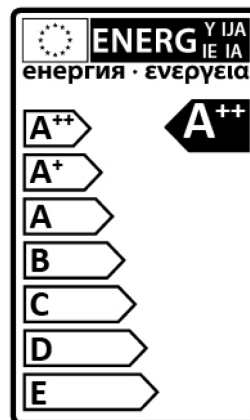
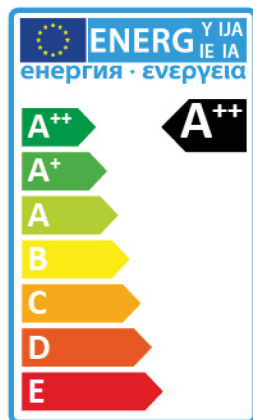
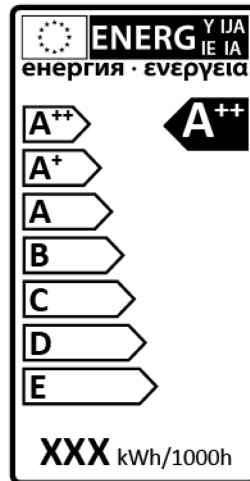
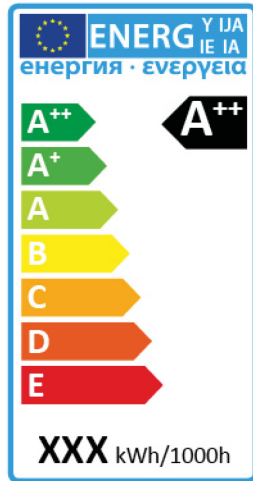


- (2) The following information shall be included on the label:

- I. supplier's name or trade mark;
- II. supplier's model identifier, meaning the code, usually alphanumeric, which distinguishes a specific lamp model from other models with the same trade mark or supplier's name;
- III. the energy efficiency class determined in accordance with Annex VI; the head of the arrow containing the energy efficiency class of the lamp shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;
- IV. weighted energy consumption (E_C) in kWh per 1 000 hours, calculated and rounded up to the nearest integer in accordance with Annex VII.

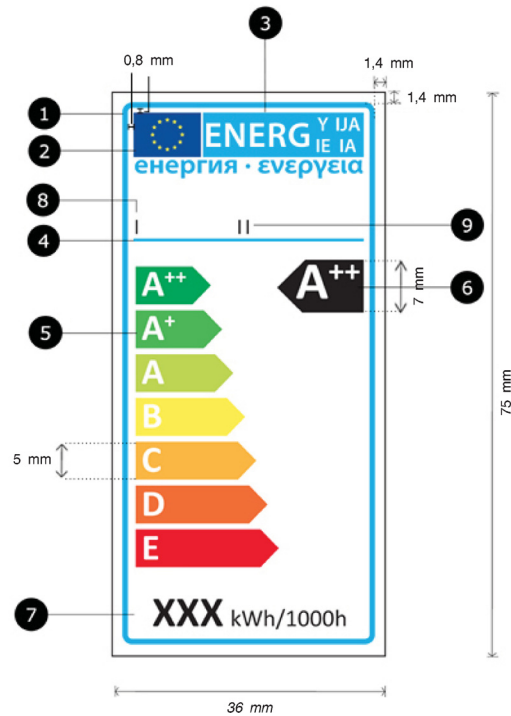
▼ B

- (3) If the label is printed on the packaging and the information specified in point (2)(I), (II) and (IV) is included elsewhere on the packaging, that information may be omitted from the label. The label shall then be chosen from the following illustrations:



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(4) The design of the label shall be as follows:



where:

- (a) the size specifications in the figure above and in point (d) apply to a lamp label 36 mm wide and 75 mm high. If the label is printed in a different format, its content must nevertheless remain proportionate to the specifications above.

The label version specified in points (1) and (2) must be at least 36 mm wide and 75 mm high, and the versions specified in point (3) must be, respectively, at least 36 mm wide and 68 mm high and at least 36 mm wide and 62 mm high. If no side of the packaging is large enough to contain the label and its blank border or if this would cover more than 50 % of the surface area of the largest side, the label and border may be reduced, but by no more than is required to meet both these conditions. However, in no case may the label be reduced to less than 40 % (by height) of its standard size. If the packaging is too small to take such a reduced label, a 36 mm wide and 75 mm high label must be attached to the lamp or the packaging;

- (b) the background shall be white for both the multicoloured and the monochrome versions of the label;
- (c) for the multicoloured version of the label, the colours shall be CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black;
- (d) the label shall meet all the following requirements (numbers refer to the figure above; colour specifications apply only to the multicoloured version of the label):

- ❶ **Border stroke:** 2 pt — colour: Cyan 100 % — round corners: 1 mm.

▼ B

- ② **EU logo** — colours: X-80-00-00 and 00-00-X-00.
- ③ **Energy logo:** colour: X-00-00-00. Pictogram as depicted: EU logo and energy logo (combined): width: 30 mm, height: 9 mm.
- ④ **Sub-logos border:** 1 pt — colour: Cyan 100 % — length: 30 mm.
- ⑤ **A++-E scale**

— **Arrow:** height: 5 mm, gap: 0,8 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 15 pt, capitals and white; '+' symbols: Calibri bold 15 pt, Superscript, white, aligned on a single row.

- ⑥ **Energy efficiency class**

— **Arrow:** width: 11,2 mm, height: 7 mm, 100 % black.

— **Text:** Calibri bold 20 pt, capitals and white; '+' symbols: Calibri bold 20 pt, Superscript, white, aligned on a single row.

- ⑦ **Weighted energy consumption**

Value: Calibri bold 16 pt, 100 % black; and Calibri regular 9 pt, 100 % black.

- ⑧ **Supplier's name or trade mark**

- ⑨ **Supplier's model identifier**

The suppliers' name or trade mark and the model identifier shall fit in a space of 30 × 7 mm.

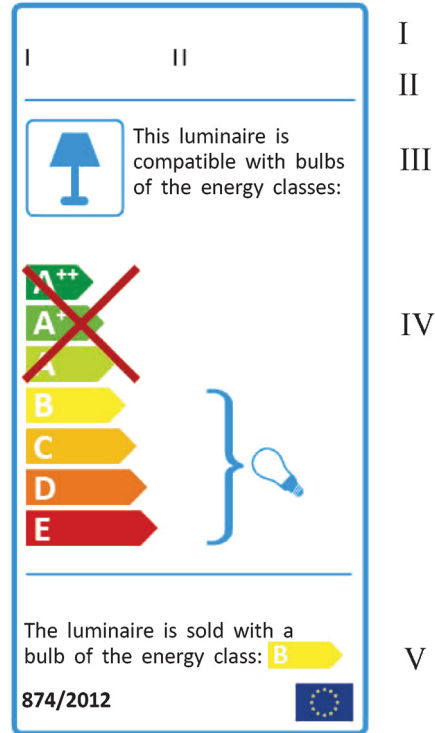
Nothing else placed or printed on, or attached to, the individual packaging shall obscure the label or reduce its visibility.

By way of derogation, if a model has been awarded an 'EU ecolabel' under Regulation (EC) No 66/2010 of the European Parliament and of the Council⁽¹⁾, a copy of the EU ecolabel may be added.

⁽¹⁾ OJ L 27, 30.1.2010, p. 1.

▼ B**2. LABEL FOR LUMINAIRES PRESENTED AT A POINT OF SALE**

- (1) The label shall be the relevant language version, and shall be as shown in the following illustration, or as in variants defined under points (2) and (3):



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

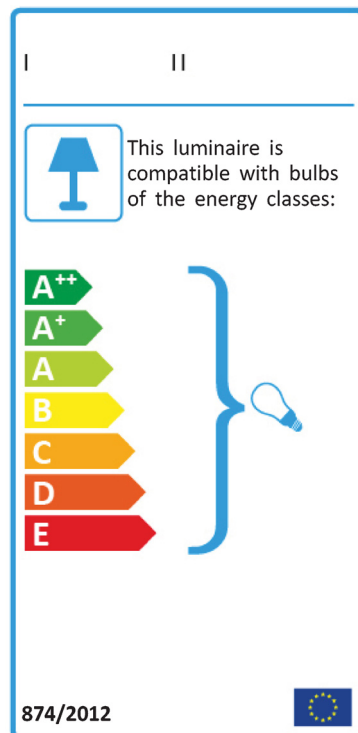
- I. the supplier's name or trade mark;
- II. the supplier's model identifier, meaning the code, usually alphanumeric, which distinguishes a specific luminaire model from other models with the same trade mark or supplier's name;
- III. the sentence as shown in the example in point (1), or one of its alternatives from the examples in point (3) below, as applicable. Instead of the word 'luminaire', a more precise term may be used describing the particular luminaire type or the product into which the luminaire is integrated (such as furniture), as long as it remains clear that the term refers to the product on sale that operates the light sources;
- IV. the range of energy-efficiency classes according to part 1 of this Annex, accompanied by the following elements, as applicable:
 - (a) a 'bulb' pictogram indicating the classes of user-replaceable lamps with which the luminaire is compatible according to state-of-the-art requirements for compatibility;
 - (b) a cross over the classes of lamps with which the luminaire is not compatible according to state-of-the-art requirements for compatibility;

▼ B

- (c) the letters 'LED' arranged vertically along the classes A to A++ if the luminaire contains LED modules not intended to be removed by the end-user. If such a luminaire does not contain sockets for user-replaceable lamps, the classes from B to E shall be covered by a cross;

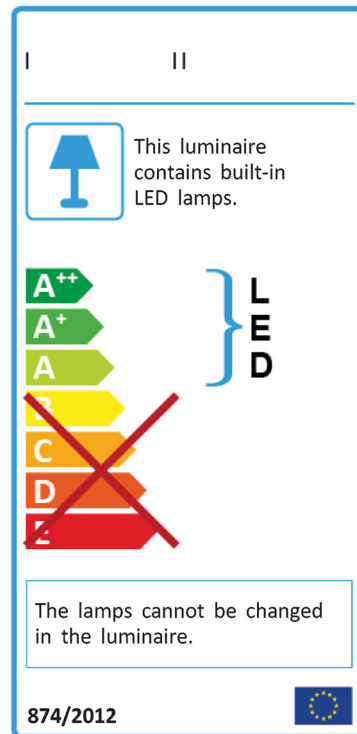
V. one of the following options, as applicable:

- (a) if the luminaire operates with lamps that are replaceable by the end-user, and such lamps are included in the packaging of the luminaire, the sentence as shown in the example in point (1), containing the appropriate energy classes. Where necessary, the sentence can be adjusted to refer to one lamp or several lamps, and several energy classes can be listed;
- (b) if the luminaire contains only LED modules not intended to be removed by the end-user, the sentence as shown in the example in point (3)(b);
- (c) if the luminaire contains both LED modules not intended to be removed by the end-user and sockets for replaceable lamps, and such lamps are not included with the luminaire, the sentence as shown in the example in point (3)(d);
- (d) if the luminaire operates only with lamps that are replaceable by the end-user and there are no such lamps included with the luminaire, the space shall be left empty, as shown in the example in point (3)(a).
- (3) The following illustrations provide examples of typical luminaire labels in addition to the illustration in point (1), without showing all possible combinations:
- (a) luminaire operating with user-replaceable lamps compatible with lamps of all energy classes with no lamps included:

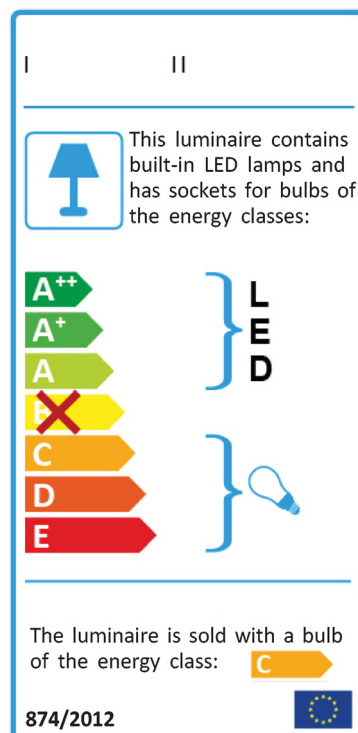


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(b) luminaire containing only non-replaceable LED modules:

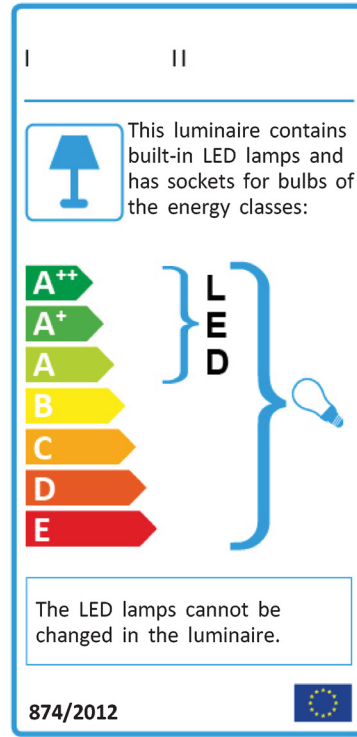


(c) luminaire containing both non-replaceable LED modules and sockets for user-replaceable lamps, with lamps included:



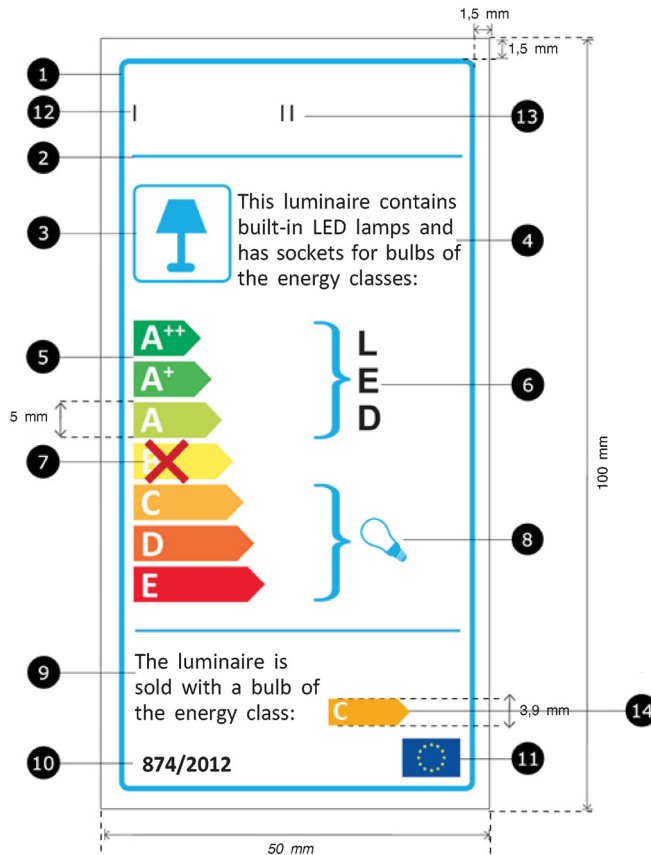
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- (d) luminaire containing both non-replaceable LED modules and sockets for user-replaceable lamps, with lamps not included:



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(4) The design of the label shall be as in the figures below:



(a) the label version shall be at least 50 mm wide and 100 mm high;

(b) the background shall be white or transparent, but the letters of the energy classes shall always be white. When the background is transparent, the dealer shall ensure that the label is applied to a surface which is white or a light shade of grey that preserves the legibility of all the elements of the label;

(c) the colours shall be CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black;

(d) the label shall fulfil all of the following requirements (the numbers refer to the figure above):

❶ **Border stroke:** 2 pt — colour: Cyan 100 % — round corners: 1 mm.

❷ **Sub-logos border:** 1 pt — colour: Cyan 100 % — length: 43 mm.

❸ **Luminaire logo:** stroke: 1 pt — colour: Cyan 100 % — Size: 13 mm × 13 mm — round corners: 1 mm. Pictogram as depicted, or the supplier's own pictogram or photo, if it describes better the luminaire belonging to the label.

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④ **Text:** Calibri Regular 9 pt or larger, 100 % black.

⑤ **A++-E scale**

— **Arrow:** height: 5 mm, gap: 0,8 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 14 pt, capitals and white; '+' symbols: Calibri bold 14 pt, Superscript, white, aligned on a single row.

⑥ **LED text:** Verdana Regular 15 pt, 100 % black.

⑦ **Cross:** colour: 13-X-X-04, stroke: 3 pt.

⑧ **Bulb logo:** Pictogram as depicted.

⑨ **Text:** Calibri Regular 10 pt or larger, 100 % black.

⑩ **Numbering of the Regulation:** Calibri bold 10 pt, 100 % black.

⑪ **EU logo:** Colours: X-80-00-00 and 00-00-X-00.

⑫ **Supplier's name or trademark.**

⑬ **Supplier's model identifier:**

The supplier's name or trade mark and the model identifier shall fit into a space measuring 43 × 10 mm.

⑭ **Energy class arrow**

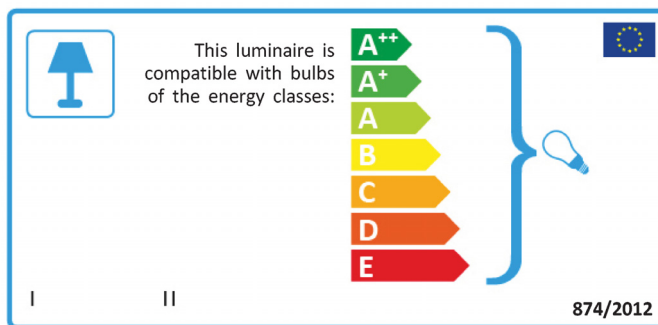
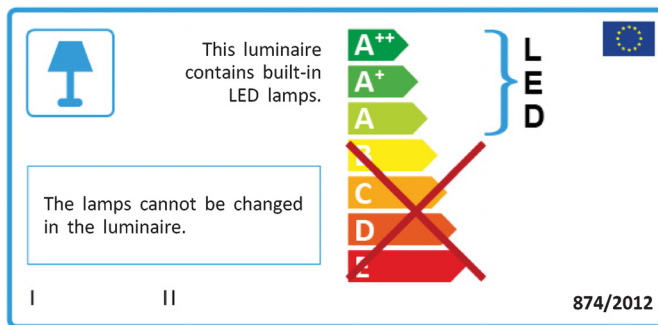
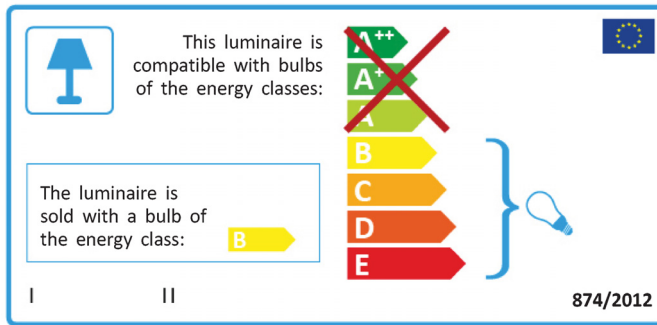
— **Arrow:** height: 3,9 mm, width: as shown in the illustration in point (4) but reduced in the same proportion as the height, colour: the colour defined in point ⑤, as applicable.

— **Text:** Calibri bold 10,5 pt, capitals and white; '+' symbols: Calibri bold 10,5 pt, Superscript, white, aligned on a single row.

If there is not enough space for displaying the energy class arrows within the area of the sentence referred to in point (2)(V)(a), the area between the number of the Regulation and the EU logo may be used for that purpose;

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- (e) the label may also be displayed in horizontal orientation, in which case it shall be at least 100 mm wide and 50 mm high. The components of the label shall be as described in points (b) to (d) and shall be arranged according to the following examples, as applicable. If there is not enough space for displaying the energy class arrows in the text box to the left from the A++ to E scale, the text box may be enlarged vertically as necessary.



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ANNEX II

Product fiche for electrical lamps

The fiche shall contain the information specified for the label. Where product brochures are not supplied, the label provided with the product can also be considered to be the fiche.

▼ B*ANNEX III***Technical documentation**

The technical documentation referred to in Article 3(1)(b) and (2)(a) shall include:

- (a) the name and address of the supplier;
- (b) a general description of the model, sufficient for it to be unequivocally and easily identified;
- (c) where appropriate, the references of the harmonised standards applied;
- (d) where appropriate, the other technical standards and specifications used;
- (e) the identification and signature of the person empowered to bind the supplier;
- (f) the technical parameters for determining energy consumption and energy efficiency in the case of electrical lamps, and compatibility with lamps in the case of luminaires, specifying at least one realistic combination of product settings and conditions in which to test the product;
- (g) for electrical lamps, the results of calculations performed in accordance with Annex VII.

The information contained in this technical documentation may be merged with the technical documentation provided in accordance with measures under Directive 2009/125/EC.

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ANNEX IV

Information to be provided in cases where final owners cannot be expected to see the product displayed

1. The information referred to in Article 4(1)(a) shall be provided in the following order:
 - (a) the energy efficiency class as defined in Annex VI;
 - (b) where required by Annex I, the weighted energy consumption in kWh per 1 000 hours, rounded up to the nearest integer and calculated in accordance with part 2 of Annex VII.
2. When other information contained in the product fiche is also provided, it shall be in the form and order specified in Annex II.
3. The size and font in which all the information referred to in this Annex is printed or shown shall be legible.

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ANNEX V

Product compliance verification by market surveillance authorities

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

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

1. VERIFICATION PROCEDURE FOR ELECTRICAL LAMPS AND LED MODULES MARKETED AS INDIVIDUAL PRODUCTS

- (1) The Member State authorities shall verify a sample batch of a minimum of 20 lamps of the same model from the same supplier, where possible obtained in equal proportions from four randomly selected sources.
- (2) The model shall be considered to comply with the applicable requirements if:
 - (a) the values given in the technical documentation pursuant to Article 5(b) of Directive 2010/30/EU (declared values), and, where applicable, the values used to calculate these values, are not more favourable for the supplier than the corresponding values given in the test reports pursuant to point (iii) of the abovementioned Article; and
 - (b) the values published on the label and in the product fiche are not more favourable for the supplier than the declared values, and the indicated energy efficiency class is not more favourable for the supplier than the class determined by the declared values; and
 - (c) when testing the units of model, the arithmetical mean of the determined values (the values of the relevant parameters as measured in testing and the values calculated from these measurements) is within the respective tolerance of 10 %.
- (3) If the results referred to in points 2(a), (b) or (c) are not achieved, the model shall be considered not to comply with this Delegated Regulation.
- (4) The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay after a decision being taken on the non-compliance of the model according to point 3.

The Member State authorities shall use measurement procedures that reflect generally recognised, current best practice and are reliable, accurate and reproducible, including methods set out in documents whose reference numbers have been published for that purpose in the *Official Journal of the European Union*. The Member State authorities shall use the measurement and calculation methods set out in Annex VII.

The Member State authorities shall only apply the verification tolerance of 10 % and shall only use the procedure described in points 1 to 4 for the requirements referred to in this Annex. No other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

▼ M2**2. VERIFICATION PROCEDURE FOR LUMINAIRES INTENDED TO BE MARKETED OR MARKETED TO THE END-USER**

The luminaire shall be considered to comply with the requirements laid down in this Regulation if it is accompanied by the required product information, if it is claimed to be compatible with all the lamp energy efficiency classes it is compatible with, and if, when applying state-of-the-art methods and criteria for assessing compatibility, it is found to be compatible with the lamp energy efficiency classes with which it is claimed to be compatible pursuant to points (2)(IV)(a) and (b) of part 2 of Annex I.

▼B*ANNEX VI***Energy efficiency classes**

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

The EEI of lamps shall be determined in accordance with Annex VII.

*Table 1***Energy efficiency classes for lamps**

Energy efficiency class	Energy efficiency index (EEI) for non-directional lamps	Energy efficiency index (EEI) for directional lamps
A++ (most efficient)	$EEI \leq 0,11$	$EEI \leq 0,13$
A+	$0,11 < EEI \leq 0,17$	$0,13 < EEI \leq 0,18$
A	$0,17 < EEI \leq 0,24$	$0,18 < EEI \leq 0,40$
B	$0,24 < EEI \leq 0,60$	$0,40 < EEI \leq 0,95$
C	$0,60 < EEI \leq 0,80$	$0,95 < EEI \leq 1,20$
D	$0,80 < EEI \leq 0,95$	$1,20 < EEI \leq 1,75$
E (least efficient)	$EEI > 0,95$	$EEI > 1,75$



ANNEX VII

Method for calculating the energy efficiency index and energy consumption

1. CALCULATION OF THE ENERGY EFFICIENCY INDEX

For the calculation of the energy efficiency index (EEI) of a model, its power corrected for any control gear losses is compared with its reference power. The reference power is obtained from the useful luminous flux, which is the total flux for non-directional lamps, and the flux in a 90° or 120° cone for directional lamps.

The EEI is calculated as follows and rounded to two decimal places:

$$EEI = P_{\text{cor}}/P_{\text{ref}}$$

where:

P_{cor} is the rated power (P_{rated}) for models without external control gear and the rated power (P_{rated}) corrected in accordance with Table 2 for models with external control gear. The rated power of the lamps is measured at their nominal input voltage.

Table 2

Power correction if the model requires external control gear

Scope of the correction	Power corrected for control gear losses (P_{cor})
Lamps operating on external halogen lamp control gear	$P_{\text{rated}} \times 1,06$
Lamps operating on external LED lamp control gear	$P_{\text{rated}} \times 1,10$
Fluorescent lamps of 16 mm diameter (T5 lamps) and 4-pin single capped fluorescent lamps operating on external fluorescent lamp control gear	$P_{\text{rated}} \times 1,10$
Other lamps operating on external fluorescent lamp control gear	$P_{\text{rated}} \times \frac{0,24\sqrt{\Phi_{\text{use}}} + 0,0103\Phi_{\text{use}}}{0,15\sqrt{\Phi_{\text{use}}} + 0,0097\Phi_{\text{use}}}$
Lamps operating on external high-intensity discharge lamp control gear	$P_{\text{rated}} \times 1,10$
Lamps operating on external low pressure sodium lamp control gear	$P_{\text{rated}} \times 1,15$

P_{ref} is the reference power obtained from the useful luminous flux of the model (Φ_{use}) by the following formulae:

$$\text{For models with } \Phi_{\text{use}} < 1\,300 \text{ lumen: } P_{\text{ref}} = 0,88\sqrt{\Phi_{\text{use}}} + 0,049\Phi_{\text{use}}$$

$$\text{For models with } \Phi_{\text{use}} \geq 1\,300 \text{ lumen: } P_{\text{ref}} = 0,07341\Phi_{\text{use}}$$

▼ B

The useful luminous flux (Φ_{use}) is defined in accordance with Table 3.

Table 3

Definition of the useful luminous flux

Model	Useful luminous flux (Φ_{use})
Non-directional lamps	Total rated luminous flux (Φ)
Directional lamps with a beam angle $\geq 90^\circ$ other than filament lamps and carrying a textual or graphical warning on their packaging that they are not suitable for accent lighting	Rated luminous flux in a 120° cone (Φ_{120°)
Other directional lamps	Rated luminous flux in a 90° cone (Φ_{90°)

2. CALCULATION OF THE ENERGY CONSUMPTION

The weighted energy consumption (E_c) is calculated in kWh/1 000 h as follows and is rounded to two decimal places:

▼ C1

$$E_c = \frac{P_{\text{cor}} \times 1\,000}{1\,000}$$

▼ B

Where P_{cor} is the power corrected for any control gear losses in accordance with part 1 above.

▼ **M1***ANNEX VIII***Information to be provided in the case of sale, hire or hire-purchase through the internet**

- (1) For the purpose of points 2 to 4 of this Annex the following definitions shall apply:
- (a) 'display mechanism' means any screen, including tactile screen, or other visual technology used for displaying internet content to users;
 - (b) 'nested display' means visual interface where an image or data set is accessed by a mouse click, mouse roll-over or tactile screen expansion of another image or data set;
 - (c) 'tactile screen' means a screen responding to touch, such as that of a tablet computer, slate computer or a smartphone;
 - (d) 'alternative text' means text provided as an alternative to a graphic allowing information to be presented in non-graphical form where display devices cannot render the graphic or as an aid to accessibility such as input to voice synthesis applications.
- (2) The appropriate label made available by suppliers in accordance with Article 3(1)(f) or Article 3(2)(e) shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in Annex I. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 3 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
- (3) The image used for accessing the label in the case of nested display shall:
- (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label;
 - (b) indicate on the arrow the energy efficiency class of the product in white in a font size equivalent to that of the price; and
 - (c) have one of the following two formats:



- (4) In the case of nested display, the sequence of display of the label shall be as follows:
- (a) the image referred to in point 3 of this Annex shall be shown on the display mechanism in proximity to the price of the product;
 - (b) the image shall link to the label;

▼ M1

- (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
- (d) the label shall be displayed by pop up, new tab, new page or inset screen display;
- (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;
- (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism;
- (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price.