

Draft

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

of [...]

**supplementing Directive 2010/30/EU of the European Parliament and of the Council
with regard to energy labelling of electrical lamps and luminaires**

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

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**supplementing Directive 2010/30/EU of the European Parliament and of the Council
with regard to energy labelling of electrical lamps and luminaires**

THE EUROPEAN COMMISSION,

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

Having regard to Directive 2010/30/EU of 19 May 2010 of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related 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 having significant potential for energy savings and a wide disparity in performance levels with equivalent functionality.
- (2) Provisions on the energy labelling of household lamps were established by Commission Directive 98/11/EC.²
- (3) The electricity used by electrical lamps accounts for a significant share of total electricity demand in the Union. In addition to the energy efficiency improvements already achieved, the scope for further reducing the energy consumption of electrical lamps is substantial.
- (4) Commission Directive 98/11/EC should be repealed and new provisions should be set out in this Regulation in order to ensure that the energy label provides dynamic incentives for suppliers further to improve the energy efficiency of electrical lamps and to speed up the market shift towards energy-efficient technologies. The scope of Directive 98/11/EC is limited to certain technologies within the category of household lamps. In order to use the label to improve the energy efficiency of other lamp technologies, including in professional lighting, this Regulation should also cover directional lamps, light-emitting diodes, and lamps used predominantly in professional lighting, such as high-intensity discharge lamps.

¹ OJ L 153, 18.6.2010, p.1.

² OJ L 71, 10.3.1998, p. 1.

- (5) Luminaires are often sold with incorporated or accompanying lamps to end-users. This Regulation should ensure that consumers are informed about the compatibility of the luminaire with energy-saving lamps and about the energy efficiency of the lamps included with the luminaire, without imposing disproportionate administrative burden on luminaire manufacturers and retailers, and without discriminating between luminaires as to the presence of energy efficiency information for consumers.
- (6) The information provided on the label should be obtained through reliable, accurate and reproducible measurement procedures, which take into account the recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation bodies, as listed in Annex I to Directive 98/34/EC.³
- (7) This Regulation should specify a uniform design and content for the label for electrical lamps and luminaires.
- (8) In addition, this Regulation should specify requirements for the technical documentation of electrical lamps and luminaires and for the fiche of electrical lamps.
- (9) Moreover, this Regulation should specify requirements for the information to be provided for any form of distance selling, advertisements and technical promotional materials for electrical lamps and luminaires.
- (10) It is appropriate to provide for a review of the provisions of this Regulation taking into account technological progress.
- (11) In order to facilitate the transition from Directive 98/11/EC to this Regulation, household lamps labelled in accordance with this Regulation should be considered compliant with Directive 98/11/EC.
- (12) Directive 98/11/EC should therefore be repealed,

HAS ADOPTED THIS REGULATION:

Article 1
Subject matter and scope

1. This Regulation establishes requirements for the labelling of and provision of supplementary product information on electrical lamps such as
 - (a) filament lamps,
 - (b) fluorescent lamps,
 - (c) high-intensity discharge lamps,
 - (d) LED lamps.

³ OJ L 204, 21.7.1998, p. 37.

This Regulation also establishes requirements for the labelling of luminaires that are designed to operate such lamps, including when the luminaires are integrated into other products.

2. The following lamps shall be excluded from the scope of this Regulation:
 - (a) those with a luminous flux of less than 30 lumens;
 - (b) those marketed primarily for operation on batteries;
 - (c) those not marketed primarily for the production of light in the visible range (380 to 780 nm);
 - (d) those marketed built into a luminaire in such a way that the end-user is not meant to replace them. However, the luminaire into which they are built is not excluded from the scope, and if the lamp is offered for sale, hire or hire purchase or displayed separately, for example as a spare part, also the lamp shall be included;
 - (e) those marketed as part of a product, the primary purpose of which is not illuminative. However, if the lamp is offered for sale, hire or hire purchase or displayed separately, for example as a spare part, it shall be included.

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 380-780 nm;
2. 'lamp' means a unit consisting of one or more light sources whose performance can be assessed independently; 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;
3. '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;
4. '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;
5. '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°);
6. 'non-directional lamp' means a lamp that is not a directional lamp;

7. '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;
8. 'incandescent lamp' means a filament lamp in which the filament operates in an evacuated bulb or is surrounded by inert gas;
9. '(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;
10. '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;
11. '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;
12. 'fluorescent lamp without integrated ballast' means a single- or double-capped fluorescent lamp without integrated ballast;
13. 'high-intensity discharge lamp' means an electric discharge lamp in which the light producing arc is stabilized by wall temperature and the arc has a bulb wall loading in excess of 3 watts per square centimetre;
14. 'light-emitting diode (LED)' means a light source which consists of a solid state device embodying p-n junctions, emitting optical radiation when excited by an electric current;
15. 'LED package' means an assembly of one or more LED(s), possibly with an optical element and thermal, mechanical and electrical interfaces;
16. 'LED module' means an assembly having no cap and incorporating one or more LED packages on a printed circuit board, which may have electrical, optical, mechanical and thermal components, and control gear;
17. 'LED lamp' means a lamp incorporating one or more LED modules, which may be equipped with a cap;
18. 'lamp control gear' means a device 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 starting voltage and preheating current, preventing cold starting, correcting power factor, reducing radio interference. The device may be designed to connect to other lamp control gear to perform these functions. It does not include control devices';
19. '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 phase cut dimmers, timer switches, occupancy sensors, light sensors, daylight regulation;

20. '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;
21. '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;
22. 'halogen lamp control gear' means lamp control gear that transforms mains voltage to extra low voltage for halogen lamps;
23. 'compact fluorescent lamp' means a fluorescent lamp that includes all the components necessary for starting and stable operation of the lamp;
24. '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 supply;
25. 'point of sale' means a location where the product is displayed or offered for sale, hire or hire-purchase to the end-user;
26. '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;
27. '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;
 - (c) any advertisement, 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.

2. Suppliers of luminaires intended to be marketed to end-users shall ensure that:
 - (a) 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;
 - (b) the information contained in the label according to Annex I.2 is provided in the following situations:
 - (i) in any advertisement, price quote or tender offer disclosing energy-related or price information for a specific luminaire;
 - (ii) in any technical promotional material concerning a specific lamp which describes its specific technical parameters;

In these cases the information may be provided in other formats than that set out in Annex I.2, such as fully textual;

- (c) if the luminaire 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 is made available free of charge to dealers in electronic or paper format. In case the supplier chooses a delivery system in which labels are provided only on request from dealers, the supplier shall promptly deliver the labels on request;
- (d) if the luminaire is placed on the market in a packaging for end-users that includes electrical lamps that are replaceable by the end-user in the luminaire, the original packaging of the lamps is included in the luminaire's packaging, or the information contained on the lamps' original packaging and required in this Regulation and in Commission regulations setting ecodesign requirements for lamps pursuant to Directive 2009/125/EC⁴ is present in other form inside or on the packaging of the luminaire.

Suppliers of luminaires intended to be marketed through a point of sale who provide information under this Regulation shall be considered to have fulfilled their responsibilities as distributor with respect to product information requirements for lamps laid down in Commission regulations setting ecodesign requirements for lamps pursuant to Directive 2009/125/EC.

Article 4 *Responsibilities of dealers*

1. Dealers of electrical lamps shall ensure that:
 - (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;

⁴ OJ L 285, 31.10.2009, p. 10.

- (b) any advertisement, 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.

2. Dealers of luminaires marketed to end-users shall ensure that:

- (a) the information contained in the label according to Annex I.2 is provided in the following situations:
 - (i) in any advertisement, price quote or tender offer disclosing energy-related or price information for a specific luminaire;
 - (ii) in any technical promotional material concerning a specific lamp which describes its specific technical parameters;

In these cases the information may be provided in other formats than that set out in Annex I.2, such as fully textual;

- (b) each model presented at a point of sale is accompanied by the label as set out in Annex I.2 and displayed according to one or both of the following options:
 - (i) in proximity of the displayed luminaire, so as to be clearly visible and identifiable as the label belonging to the model, without having to read the brand name and model number on the label;
 - (ii) clearly accompanying any directly visible price information or technical information which is given about the displayed luminaire in the point of sale;
- (c) if the luminaire is sold in a packaging for end-users that includes electrical lamps that are replaceable by the end-user in the luminaire, the original packaging of the lamps is included in the luminaire's packaging, or the information contained on the lamps' original packaging and required in this Regulation and in Commission regulations setting ecodesign requirements for lamps pursuant to Directive 2009/125/EC is present in other form inside or on the packaging of the luminaire.

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.

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 of the 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

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

References to Commission 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. Article 3(2) and 4(2) shall not apply to luminaires before 1 March 2014.
2. Articles 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.

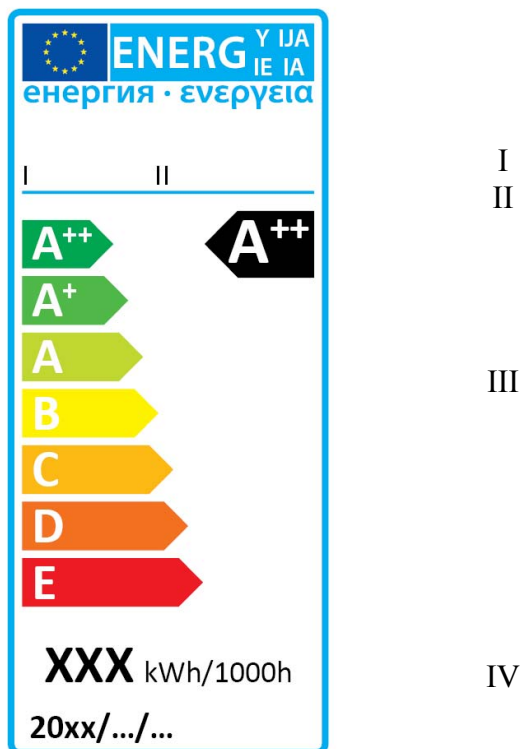
Done at Brussels,

*For the Commission
The President*

ANNEX I
Label

1. LABEL FOR ELECTRICAL LAMPS

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

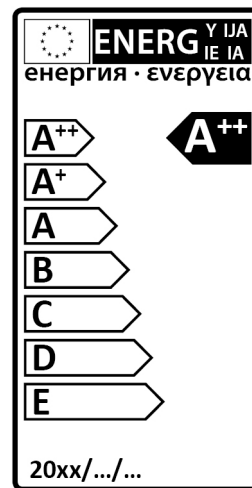
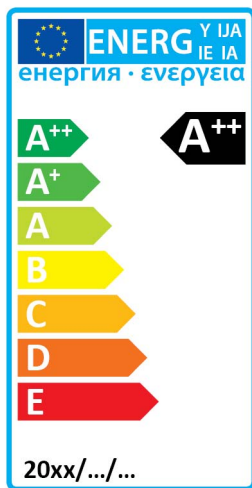
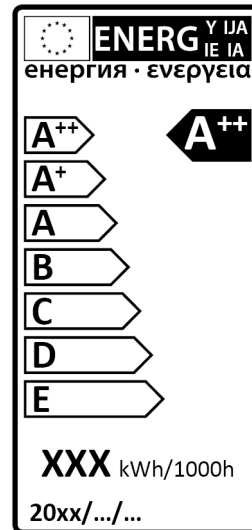
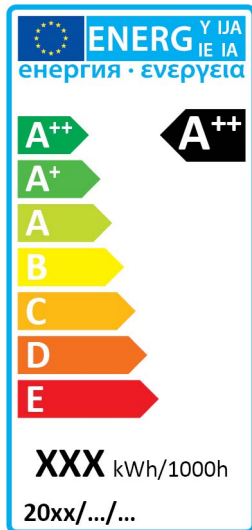


[* Numbering of the Regulation to be added on the label before publication in the OJ]

(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 1000 hours, rounded up to the nearest integer in accordance with Annex VII;

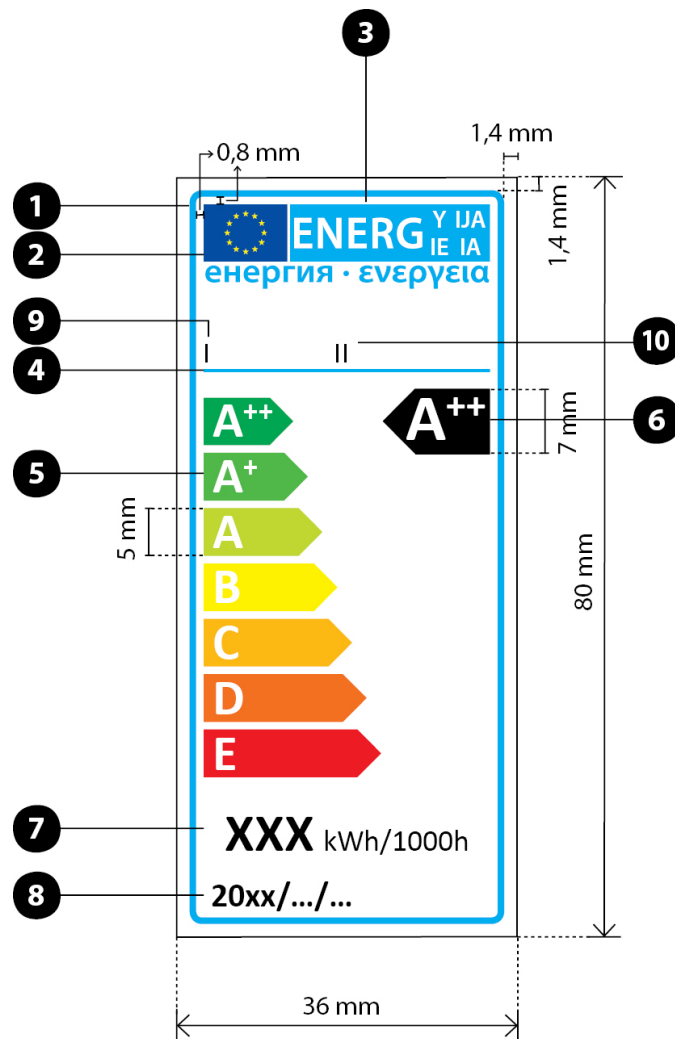
(3) If the label is printed on the packaging and the information specified in point (2)(I), (II) and (IV) is included elsewhere on the packaging, that information may be omitted from the label. The label shall then be chosen from the following illustrations:



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The monochrome version of the label may only be used if all other text and pictogram on the packaging is printed in the same colour.

- (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 80 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 point (2) must be at least 36 mm wide and 80 mm high, and the versions specified in point (3) must be, respectively, at least 36 mm wide and 73 mm high and at least 36 mm wide and 67 mm high. If no side of the packaging that 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 length) of its standard size. If the packaging is too small to take such a reduced label, the label must be attached to the lamp or the packaging.

- (b) The background shall be white for the colour version of the label. If the monochrome version of the label is used, the printing and background may be in any colours that preserve the legibility of the label.

- (c) For the colour 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 colour version of the label):
- ① **Border stroke:** 2 pt – colour: Cyan 100% – round corners: 1 mm.
 - 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 **Numbering of the Regulation:** Calibri bold 10 pt, 100% black.
 - ⑨ **Supplier's name or trade mark**
 - ⑩ **Supplier's model identifier**

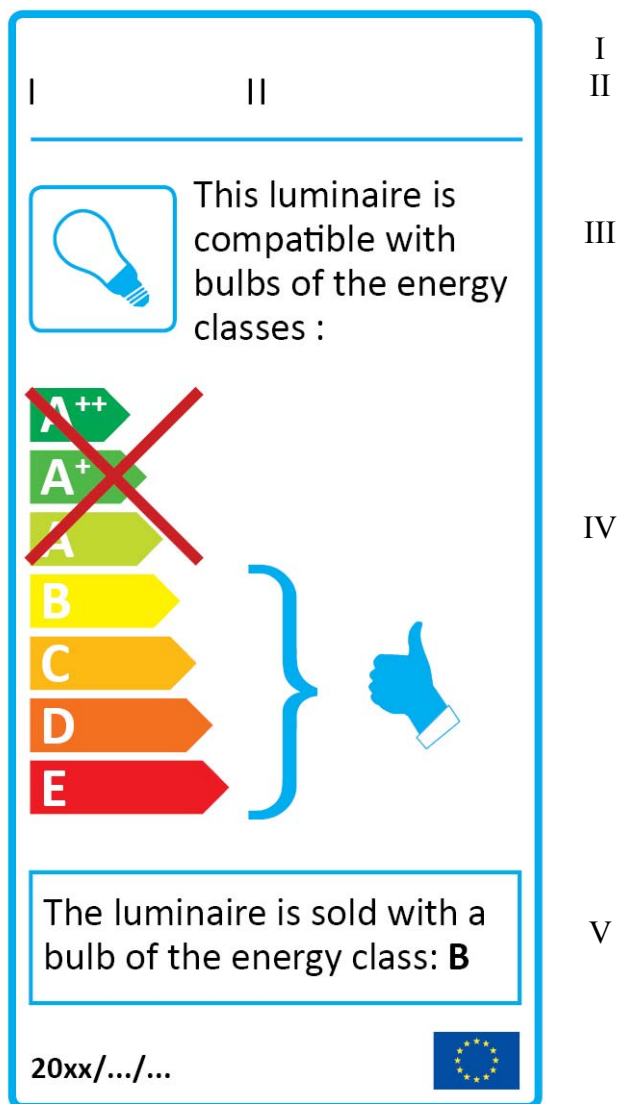
The suppliers' name or trade mark and the model identifier should fit in a space of 30 x 7 mm.

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 66/2010⁵ of the European Parliament and of the Council, a copy of the EU ecolabel may be added.

2. LABEL FOR LUMINAIRES PRESENTED AT A POINT OF SALE

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



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

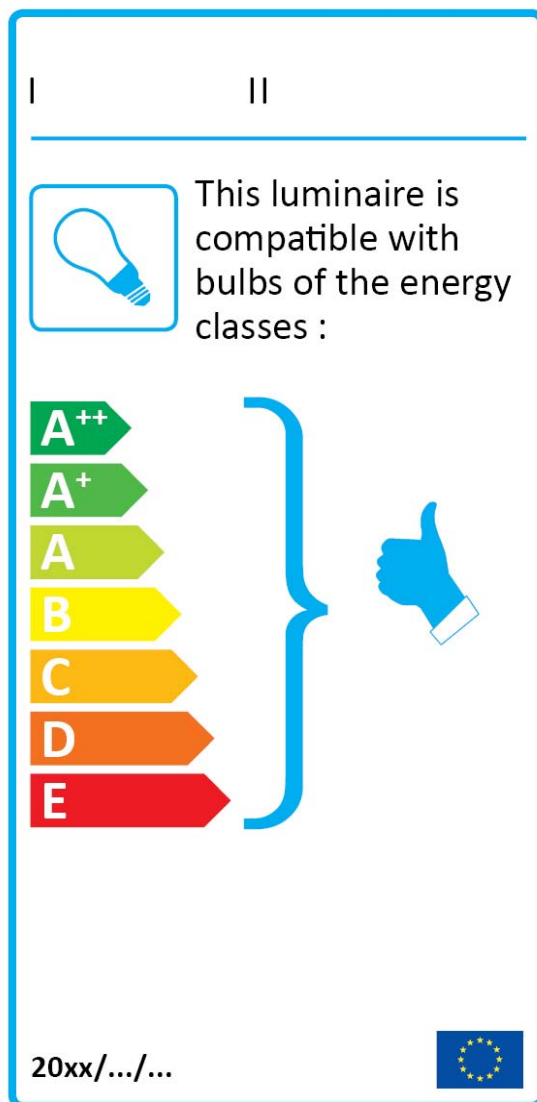
⁵ OJ L 27, 30.1.2010, p. 1.

- I. supplier's name or trade mark;
- II. 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. sentence explaining whether the luminaire operates with lamps that are replaceable by the end-user, with integrated LED modules not replaceable by the end-user, or with both. The sentence also serves as an introduction to the energy classes of user-replaceable lamps compatible with the luminaire as set out in point IV. 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. range of energy efficiency classes according to part 1 of this Annex, accompanied by the following elements as applicable:
 - (a) a "thumbs up" 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;
 - (c) the letters "LED" arranged vertically along the classes A to A++ if the luminaire contains integrated LED modules not replaceable 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 with a cross;
- V. sentence indicating as applicable:
 - (a) if the luminaire operates with lamps that are replaceable by the end-user, the energy efficiency classes of such lamps included in the packaging of the luminaire. 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 integrated LED modules not replaceable by the end-user, a warning that the lamps in the luminaire cannot be replaced.

The sentence may be omitted if the luminaire operates with lamps that are replaceable by the end-user and there are no such lamps included with the luminaire.

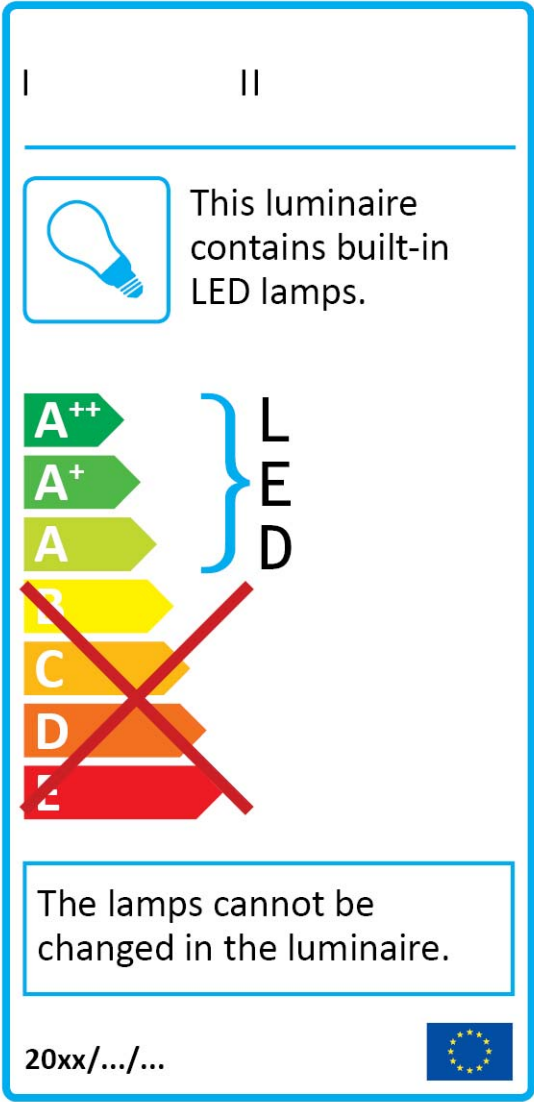
- (3) The following illustrations provide examples of typical luminaire labels in addition to the illustration in point (1), without showing all possible combinations.

- (a) Luminaire operating with user-replaceable lamps compatible with lamps of all energy classes with no lamps included:



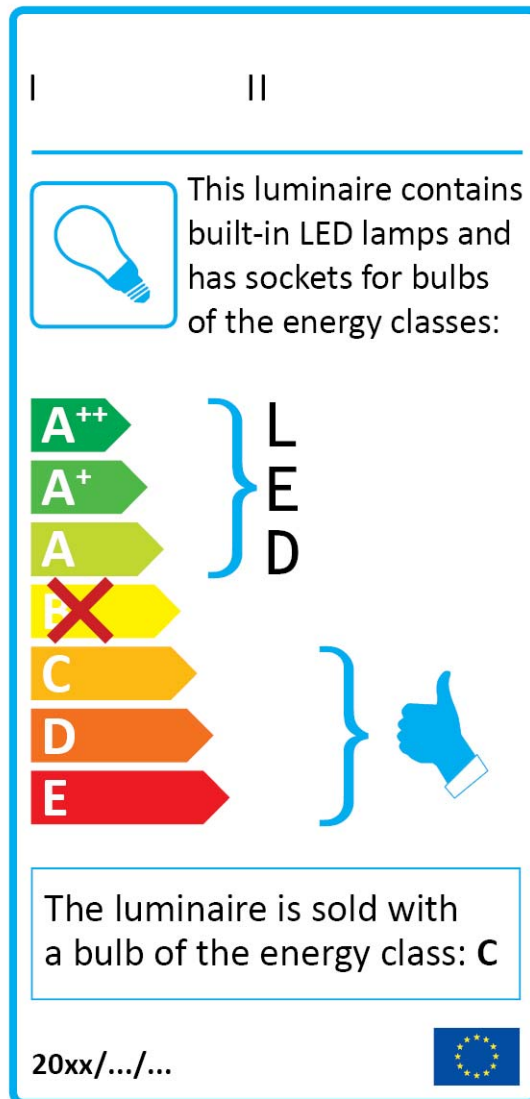
[* Numbering of the Regulation to be added on the label before publication in the OJ]

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



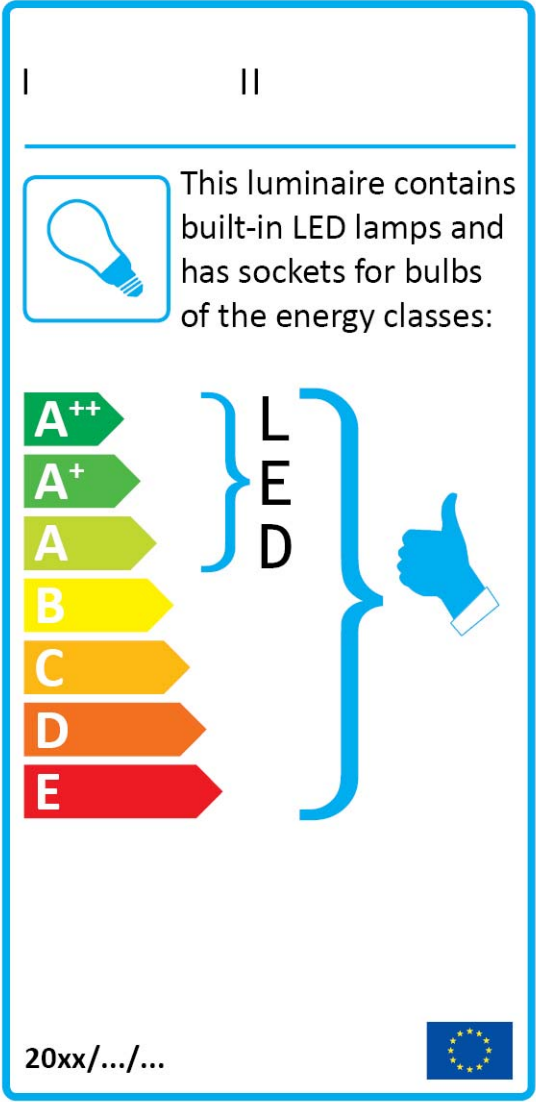
[* Numbering of the Regulation to be added on the label before publication in the OJ]

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



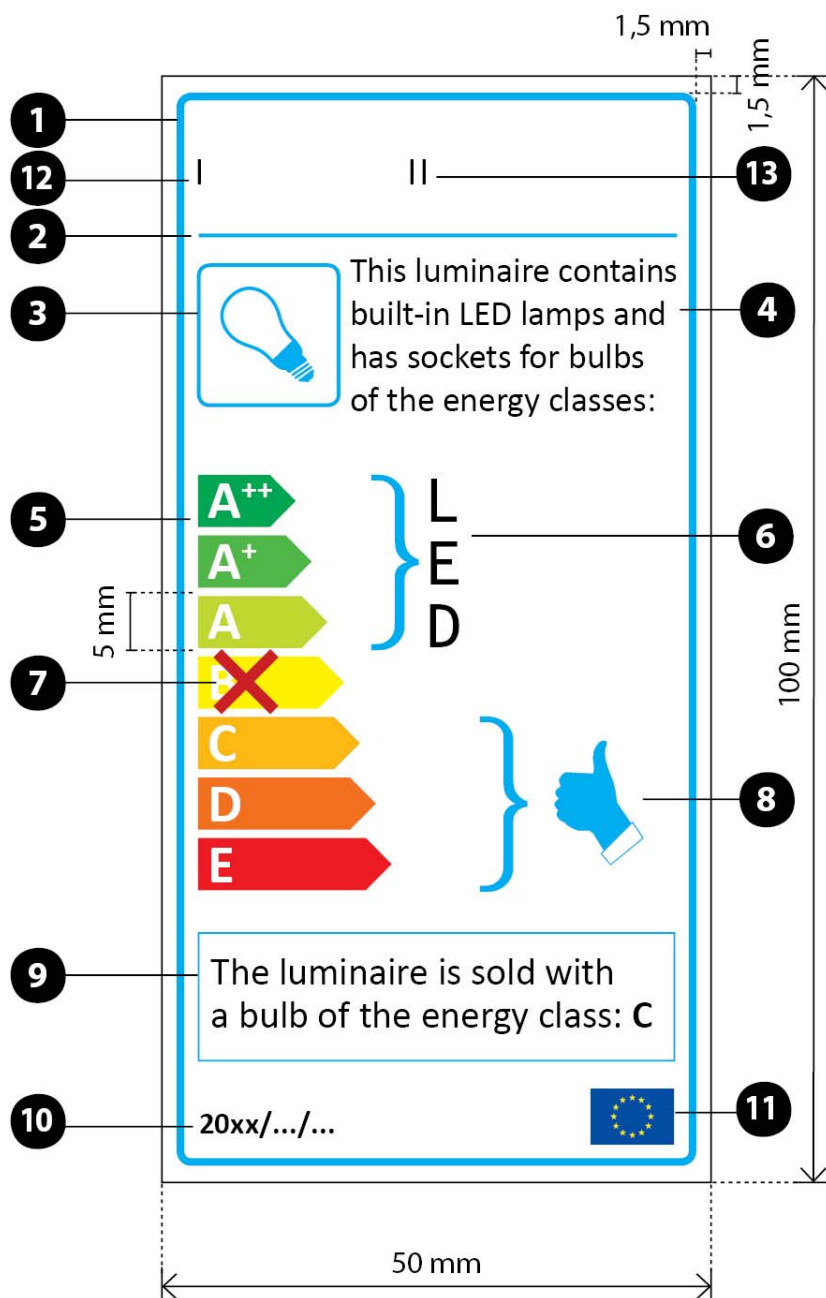
[* Numbering of the Regulation to be added on the label before publication in the OJ]

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



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

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



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- (a) The label version must be at least 50 mm wide and 100 mm high.
- (b) The background shall be white for the colour version of the label. If the monochrome version of the label specified in paragraph (e) is used, the printing and background may be in any colours that preserve the legibility of the label.

(c) For the colour version of the label, colours shall be CMYK — cyan, magenta, yellow and black, following this example: 00-70-X-00: 0% cyan, 70% magenta, 100% yellow, 0% black.

(d) The label shall fulfil all of the following requirements (numbers refer to the figure above, colour specifications apply only to the colour version of the label):

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

② **Sub-logos border:** 1 pt – colour: Cyan 100% – length: 43 mm..

③ **Bulb logo:** stroke: 1 pt – colour: Cyan 100% – Size :13 mm x 13 mm – round corners: 1 mm...

Pictogram as depicted

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 **Thumbs up 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 suppliers' name or trade mark and the model identifier shall fit in a space of 43 x 10 mm.

(e) If the label is displayed alongside price or technical information about the luminaire provided in monochrome layout, a monochrome version of the label may be used, converted from the colour version the same way as the label in the figure below was converted from the figure in point (3)(c) above.

I

II



This luminaire contains built-in LED lamps and has sockets for bulbs of the energy classes:

A⁺⁺

A⁺

A

~~B~~

C

D

E

} LED



The luminaire is sold with a bulb of the energy class: C

20xx/.../...



ANNEX II
Product Fiche for electrical lamps

1. The information in the product fiche shall be provided in the following order and shall be included in the product brochure or other literature provided with the product:
 - (a) supplier's name or trade mark;
 - (b) supplier's model identifier, meaning the code, usually alphanumeric, which distinguishes a specific model from other models with the same trade mark or supplier's name;
 - (c) energy efficiency class(es) in accordance with Annex VI;
 - (d) if the model has been awarded an 'EU ecolabel' under Regulation (EC) No 66/2010⁶, this information may be included;
 - (e) weighted energy consumption (E_C) in kWh per 1000 hours, rounded up to the nearest integer; it shall be described as: 'Energy consumption "X" kWh per 1000h';
2. One fiche may cover a number of models supplied by the same supplier.
3. The information contained in the fiche may take the form of a copy of the label, either in colour or in black and white. When this is the case, the information listed in point 1 not already displayed on the label or on the lamp's packaging shall also be provided.

⁶ OJ L 27, 30.1.2010, p. 1.

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 in the case of electrical lamps, and compatibility with lamps in the case of luminaires, specifying at least one realistic combination of settings and conditions in which to measure 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.

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, rounded up to the nearest integer and calculated in accordance with point 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.

ANNEX V

Verification procedure for market surveillance purposes

When performing the market surveillance checks, the market surveillance authorities shall provide the information of the testing results to other Member States and to the Commission.

Member States' authorities shall use reliable, accurate and reproducible measurement procedures, which take into account the generally recognised state-of-the-art measurement methods, including methods set out in documents whose reference numbers have been published for that purpose in the Official Journal of the European Union.

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

For the purposes of checking conformity with the requirements laid down in Articles 3 and 4, Member States' authorities shall test a sample batch of a minimum of twenty lamps of the same model from the same manufacturer, where possible obtained in equal proportion from four randomly selected sources.

The model shall be considered to comply with the requirements laid down in Articles 3 and 4 if the average results of the batch do not vary from the limit, threshold or declared values by more than 10%.

Otherwise, the model shall be considered not to comply with the requirements laid down in Articles 3 and 4.

The tolerances for variation indicated above relate only to the verification of the measured parameters by the Member States' authorities and shall not be used by the supplier as an allowed tolerance on the values in the technical documentation to achieve a more efficient energy class.

The declared values shall not be more favourable for the supplier than the values reported in the technical documentation.

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 Article 3 and 4 if it is accompanied by the required product information, and if it is found to be compatible with any lamps with which it is claimed to be compatible according to points 2.2.IV(a) and (b) of Annex I, applying state-of-the-art methods and criteria for assessing compatibility, including those set out in documents whose reference numbers have been published for that purpose in the Official Journal of the European Union.

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 energy efficiency index (*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)	$EEI \leq 0.11$	$EEI \leq 0.15$
A+	$0.11 < EEI \leq 0.20$	$0.15 < EEI \leq 0.20$
A	$0.20 < EEI \leq 0.24$	$0.20 < EEI \leq 0.50$
B	$0.24 < EEI \leq 0.60$	$0.50 < EEI \leq 0.95$
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 general lighting lamps.

The energy efficiency index (EEI) is calculated as follows and rounded to two decimal places:

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

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	$P_{rated} \times 1.06$
Lamps operating on external LED lamp control gear	$P_{rated} \times 1.10$
Fluorescent lamps of 16 mm diameter (T5 lamps) and 4-pin single capped fluorescent lamps operating on external fluorescent lamp control gear	$P_{rated} \times 1.10$
Other lamps operating on external fluorescent lamp control gear	$P_{rated} \times \frac{0.24\sqrt{\Phi_{use}} + 0.0103\Phi_{use}}{0.15\sqrt{\Phi_{use}} + 0.0097\Phi_{use}}$
Lamps operating on external high-intensity discharge lamp control gear	$P_{rated} \times 1.10$
Lamps operating on external low pressure sodium lamp control gear	$P_{rated} \times 1.15$

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

For models with $\Phi_{use} < 1300$ lumen : $P_{ref} = 0.88\sqrt{\Phi_{use}} + 0.049\Phi_{use}$

For models with $\Phi_{\text{use}} \geq 1300$ lumen : $P_{\text{ref}} = 0.07341\Phi_{\text{use}}$

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 other than filament lamps with a beam angle $\geq 90^\circ$ 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/1000h as follows and is rounded to two decimal places:

$$E_c = \frac{P_{\text{cor}} \times 1000 h}{1000}$$

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