

**DRAFT OF THE COMMUNIQUE ON ENERGY LABELING OF LIGHT SOURCES
(2019/2015 / EU) (SGM: 2021/12)**

Objective

ARTICLE 1 – (1) The purpose of this Communiqué is to establish requirements for the labelling of, and the provision of supplementary product information on light sources with or without separate control gears or light sources included in the containing product related to the implementation of the Regulation on Setting a Framework for Energy Labelling put into force by the President's Decree dated 1/3/2021 and numbered 3584.

Scope

ARTICLE 2– (1) This Communiqué shall apply to light sources and separate control gears.

(2) This Communiqué shall not apply to light sources specified in points 1 and 3 of Annex-IV.

(3) Light sources specified in point 4 of Annex IV shall comply only with the requirements of point 4 of Annex V.

Legal Basis

ARTICLE 3 – (1) This Communiqué has been prepared on the basis of the Law No. 4703 of 29/6/2001 on the Preparation and Implementation of Technical Legislation on Products and Presidential Decree No. 1 on the Presidency Organization published in the Official Gazette No. 30474 dated 10/7/2018.

Compliance with the European Union Legislation

ARTICLE 4 – (1) This Communiqué has been prepared based on Commission Regulation (EU) 2019/2020 and (EU) 2021/340, laying down Energy Labelling of Light Sources in the framework of alignment with the legislation of European Union.

Definitions

ARTICLE 5 – (1) For the purpose of this Communiqué the following definitions shall apply:

- a) 'EU' means European Union,
- b) 'Incandescence' means the phenomenon where light is produced from heat, in light sources typically produced through a threadlike conductor ('filament') which is heated by the passage of an electric current,
- c) 'Ministry' means Ministry of Industry and Technology,
- ç) 'Mains' means the electricity supply of 230 (\pm 10 %) volt of alternating current at 50 Hz,

d) 'Fluorescence' (FL) means the phenomenon or a light source in which magnetic induction light sources are included for the purposes of this Communique, that may have one ('single-capped') or two ('double-capped') connections ('caps') to their electricity supply, using an electric gas discharge 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,

e) 'Gas discharge' means a phenomenon where light is produced, directly or indirectly, by an electric discharge through a gas, plasma, metal vapour or mixture of gases and vapours,

f) 'Halogen light source' means an incandescent light source with a threadlike conductor made from tungsten surrounded by gas containing halogens or halogen compounds,

g) 'Light' means electromagnetic radiation with a wavelength between 380 nm and 780 nm,

ğ) 'luminous flux' (Φ), expressed in lumen (lm), means the quantity derived from radiant flux (radiant power) by evaluating the electromagnetic radiation in accordance with the spectral sensitivity of the human eye; referring to the total flux emitted by a light source in a solid angle of 4π steradians under conditions (e.g. current, voltage, temperature) specified in applicable standards referring to the initial flux for the undimmed light source after a short operating period, unless it is clearly specified that the flux in a dimmed condition or the flux after a given period of operation is intended and for light sources that can be tuned to emit different light spectra and/or different maximum light intensities, referring to the flux in the 'reference control settings' as defined in Annex I,

h) 'Light source' means an electrically operated product using incandescence, fluorescence, high-intensity discharge, inorganic light emitting diodes (LED) or organic light emitting diodes (OLED), or their combinations as lighting technology, and that can be verified as a light source according to the procedure of Annex IV. , intended to emit, or, in the case of a non-incandescent light source, intended to be possibly tuned to emit, light, or both, with all of the following optical characteristics,

1) chromaticity coordinates x and y in the range

$0,270 < x < 0,530$ and $2,3172 x^2 + 2,3653 x - 0,2199 < y < - 2,3172 x^2 + 2,3653 x - 0,1595$;

2) a luminous flux < 500 lumen per mm^2 of projected light-emitting surface area as defined in Annex I;

3) a luminous flux between 60 and 82 000 lumen;

4) a colour rendering index (CRI) > 0 ;

5) High-pressure sodium (HPS) light sources that do not fulfil condition (a) are considered light sources for the purposes of this Communique.

6) Light sources do not include:

(a) LED dies or LED chips;

(b) LED packages;

(c) products containing light source(s) from which these light source(s) can be removed for verification;

(ç) light-emitting parts contained in a light source from which these parts cannot be removed for verification as a light source;

i) “containing product” means a product containing one or more light sources, or separate control gears, or both, including, but not limited to, luminaires that can be taken apart to allow separate verification of the contained light source(s), household appliances containing light source(s), furniture (shelves, mirrors, display cabinets) containing light source(s),

i) ‘Inorganic light emitting diode’ (LED) means a technology in which light is produced from a solid state device embodying a p-n junction of inorganic material that emits optical radiation when excited by an electric current,

j) ‘Control gear’ means one or more devices, that may or may not be physically integrated in a light source, intended to prepare the mains for the electric format required by one or more specific light sources within boundary conditions set by electric safety and electromagnetic compatibility,

1) It may include transforming the supply and starting voltage, limiting operational and preheating current, preventing cold starting, correcting the power factor and/or reducing radio interference.

2) The term ‘control gear’ does not include power supplies within the scope of Communiqué on Ecodesign Requirements of External Power Supplies published in the Official Gazette dated 01/09/2020 and numbered 31231 (2019/1782/EU) (SGM: 2020 /5). The term also does not include lighting control parts and non-lighting parts (as defined in Annex I), although such parts may be physically integrated with a control gear or marketed together as a single product.

3) A Power over Ethernet (PoE) switch is not a control gear in the sense of this Communiqué. ‘Power-over-Ethernet switch’ or ‘PoE switch’ means equipment for power-supply and data-handling that is installed between the mains and office equipment and/or light sources for the purpose of data transfer and power supply;

k) ‘LED package’ means a single electric part comprising principally at least one LED die. It does not include a control gear or parts of it, a cap or active electronic components and is not connected directly to the mains voltage. It can include one or more of the following: optical elements, light converters (phosphors), thermal, mechanical and electric interfaces or parts to address electrostatic discharge concerns. Any light-emitting devices that are intended to be used directly in an LED luminaire, are considered to be light sources,

l) ‘LED chip’ means a small block of light-emitting semiconducting material on which a functional LED circuit is fabricated,

m) ‘Organic light emitting diode’ (OLED) means a technology in which light is produced from a solid state device embodying a p-n junction of organic material that emits optical radiation when excited by an electric current,

n) ‘Colour rendering index’ (CRI) means a metric quantifying the effect of an illuminant on the colour appearance of objects by conscious or subconscious comparison with their colour

appearance under the reference illuminant and is the average Ra of the colour rendering for the first 8 test colours (R1-R8) defined in standards,

o) 'Point of sale' means a physical location where the product is displayed or offered for sale, hire or hire-purchase to the customer.

ö) 'Chromaticity' means the property of a colour stimulus defined by its chromaticity coordinates (x and y),

p) 'High-pressure sodium light source' (HPS) means a high intensity discharge light source that may have one ('single-ended') or two ('double-ended') connectors to their electricity supply and which the light is produced mainly by radiation from sodium vapour operating at a partial pressure of the order of 10 kilopascals.

r) 'High intensity discharge' (HID) means an electric gas discharge, limited to metal halide, high-pressure sodium and mercury vapour types, as defined in Annex I, in which the light-producing arc is stabilised by wall temperature and the arc chamber has a bulb wall loading in excess of 3 watts per square centimetre,

(2) Additional definitions are set out in Annex I.

Obligations of suppliers

ARTICLE 6 – (1) Suppliers of light sources shall ensure that:

a) Each light source which is placed on the market as an independent product (i.e. not in a containing product) and in packaging, is supplied with a label, printed on the packaging, in the format as set out in Annex III;

b) The values of the parameters included in the product information sheet, as set out in Annex V, are entered into the product database or on their own website;

c) If specifically requested by the dealer, the product information sheet shall be made available in printed form;

ç) The content of the technical documentation, as set out in Annex VI shall be created and prepared.

d) Any visual advertisement for a specific model of light source contains the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII and Annex VIII;

e) Any technical promotional material concerning a specific model of light source, including technical promotional material on the internet, which describes its specific technical parameters, includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII;

f) An electronic label in the format and containing the information, as set out in Annex III, is made available to dealers for each light source model;

g) an electronic product information sheet, as set out in Annex V, is made available to dealers for each light source model;

h) By way of derogation from point 4 of Article 12 of Regulation on Setting a Framework for Energy Labelling, upon request by dealers and in accordance with Article 7(1)(d), printed labels to rescale products are provided as a sticker, of the same size as the one which already exists.

(2) Suppliers of containing products shall:

a) Provide information on the contained light source(s), as specified in point 2 of Annex V;

b) Upon request by the Ministry, provide information on how light source can be removed for verification without permanent damage to the light source.

(3) The energy efficiency class shall be calculated in accordance with Annex II.

Obligations of dealers

ARTICLE 7 – (1) Dealers shall ensure that:

a) At the point of sale, each light source which is not in a containing product bears the label provided by suppliers in accordance with point 1(a) of Article 6 to this Communiqué, with the label or the energy class being displayed in such a way as to be clearly visible, in accordance with Annex III;

b) In the event of distance selling, the label and product information sheet are provided, in accordance with Annexes VII and VIII;

c) Any visual advertisement for a specific model of light source, including on the internet, contains the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII;

ç) Any technical promotional material concerning a specific model of light source, including technical promotional material on the internet, which describes its specific technical parameters includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII;

d) By way of derogation from points 3, 4 and 5 of Article 12 of Regulation on Setting a Framework for Energy Labelling, existing labels on light sources at points of sale are replaced by the rescaled labels in such a way as to cover the existing label, including when printed on or attached to the package, within eighteen months after the date of application of this Communiqué, and rescaled labels are not displayed before that date.

Obligations of internet hosting platforms

ARTICLE 8 – (1) Where a hosting service provider or service provider as referred to in Regulation on Service Providers and Hosting Service Providers in Electronic Commerce published in the Official Gazette dated 26/08/2015 and numbered 29457 allows the selling of light sources through its internet site, the service provider or hosting service provider shall enable the showing of the electronic label and electronic product information sheet provided by the dealer on the display mechanism in accordance with the provisions of Annex VIII to this Communiqué and shall inform the dealer of the obligation to display them.

Measurement methods

ARTICLE 9– (1) The information to be provided pursuant to Articles 6 and 7 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 method, as set out in Annex II.

Verification procedure for market surveillance purposes

ARTICLE 10 – (1) Ministry shall apply the verification procedure laid down in Annex IX when performing the market surveillance checks referred to in Article 10 of Regulation on Setting a Framework for Energy Labelling.

Review

ARTICLE 11– (1) The Ministry shall participate in the meetings with respect to this Communiqué of the advisory board established by the European Commission in order to conduct studies on assessing the energy efficiency classes, methods to address the energy efficiency and circular economy aspects.

Repeal

ARTICLE 12 – (1) The Communiqué on Energy Labeling of Electric Lamps and Lighting Luminaires (SGM-2015/9) published in the Official Gazette dated 14/02/2015 and numbered 29267 has been repealed.

Transitional provisions

TRANSITIONAL ARTICLE 1 - (1) By way of derogation from point 3 of Article 12 of Regulation on Setting a Framework for Energy Labelling, the supplier shall, when placing a light source on the market, provide it with the existing label until 31/8/2021. The supplier shall provide it with the rescaled label from 1/9/2021.

TRANSITIONAL ARTICLE 2 - (1) The supplier may choose to already provide light sources placed on the market during the period from 1/6/2021 to 31/8/2021 with the rescaled label, if no light sources belonging to the same model or equivalent models were placed on the market before 1/7/2021. In that case, the dealer shall not offer those light sources for sale before 1/9/2021. The supplier shall notify the dealer concerned of that consequence as soon as possible, including when it includes such light sources in its offers to dealers.

Entry into force and application

ARTICLE 14 - (1) Article 13 of this Communiqué shall into force on the date of its publication, point 2(a) of Article 6 on 1/3/2022, and other provisions on 1/9/2021.

Enforcement

ARTICLE 15 – (1) The provisions of this Communiqué shall be enforced by the Minister of Industry and Technology.

DEFINITIONS APPLICABLE FOR THE ANNEXES

1. The following definitions shall apply:

a) 'Network' means a communication infrastructure with a topology of links, an architecture, including the physical components, organisational principles, communication procedures and formats (protocols),

b) 'Networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode,

c) 'Networked standby mode' means the condition of a CLS or a CSCG where it is connected to the power supply but the light source is intentionally not emitting light or the control gear does not supply the electric power that enables light source(s) to emit light, and is awaiting a remotely initiated trigger to return to a state with light emission, that lighting control parts are in their control mode, non-lighting parts are disconnected or switched off or their power consumption is minimised following manufacturer's instructions,

ç) '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;

d) 'Non-lighting parts' means parts that are integrated in a light source, or in a separate control gear, or physically separated but marketed together with a light source or separate control gear as a single product, that are not necessary for the light source to emit light at full-load, or for the separate control gear to supply the electric power that enables light source(s) to emit light at full-load, and that are not lighting control parts, that also include data-connection parts used for other functions than to control the light emission function, that include, but are not limited to: speakers (audio), cameras, repeaters for communication signals to extend the range (e.g. WiFi), parts supporting grid balance (switching to own internal batteries when necessary), battery charging, visual notification of events (mail arriving, door bell ringing, alert), use of Light Fidelity (Li-Fi, a bidirectional, high-speed and fully networked wireless communication technology) as examples,

e) 'Lighting control parts' means parts that are integrated in a light source or in a separate control gear, or physically separated but marketed together with a light source or separate control gear as a single product, that are not strictly necessary for the light source to emit light at full-load, but that enable manual- or automatic-, direct- or remote-, control of luminous intensity, chromaticity, correlated colour temperature, light spectrum and/or beam angle, including dimmers and data-connection parts as well, but not including products within the scope of Communique on Ecodesign Requirements for Standby, Off Mode and Networked Standby Mode Electric Power Consumption Of Electrical And Electronic Household And Office Equipment (SGM: 2020/...) published in the Official Gazette dated and numbered ... ,

f) 'Separate control gear' means a control gear that is not physically integrated with a light source and is placed on the market as a separate product or as a part of a containing product,

g) ‘Correlated colour temperature’ (CCT [K]) means the temperature of a Planckian (black body) radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions,

ğ) ‘Connected light source’ (CLS) means a light source including data-connection parts that are physically or functionally inseparable from the light emitting parts to maintain the ‘reference control settings’ or can be combined with physically separate data connectors supplied with the light source as a single product,

h) ‘Battery-operated’ means a product that operates only on direct current (DC) supplied from a source contained in the same product, without being connected directly or indirectly to the mains electricity supply,

ı) “Declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in accordance with the fifth point of Article 5 of the Regulation on Setting a Framework for Energy Labelling and point 1(ç) of Article 6 and Annex-VI of this Communique, for the verification of compliance by the Ministry,

i) ‘On-mode power’ (P_{on}), expressed in watt, means the electric power consumption of a light source in full-load with all lighting control parts and non-lighting parts disconnected if these parts cannot be disconnected, they are switched off or their power consumption are minimised following the manufacturer’s instructions, in case of a NMLS that requires a separate control gear to operate, P_{on} can be measured directly on the input to the light source, or P_{on} is determined using a control gear with known efficiency, whose electric power consumption is subsequently subtracted from the measured mains power input value,

j) ‘Survival factor’ (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency,

k) ‘Directional light source’ (DLS) means a light source having at least 80 % of total luminous flux within a solid angle of π sr (corresponding to a cone with angle of 120°),

l) ‘Non-directional light source’ (NDLS) means a light source that is not a directional light source,

m) ‘Tactile screen’ means a screen responding to touch, such as that of a tablet computer, slate computer or a smartphone;

n) ‘Mains light source (MLS)’ means a light source that can be operated directly on the mains electricity supply, and can also be operated indirectly over the mains by using a separate control equipment,

o) ‘Non-mains light source (NMLS)’ means a light source that requires a separate control gear to operate on the mains,

ö) ‘Useful luminous flux’ (Φ_{use}), means the part of the luminous flux of a light source that is considered when determining its energy efficiency,

1) For non-directional light sources it is the total flux emitted in a solid angle of 4π sr (corresponding to a 360° sphere);

2) For directional light sources with beam angle $\geq 90^\circ$ it is the flux emitted in a solid angle of π sr (corresponding to a cone with angle of 120°);

3) for directional light sources with beam angle $< 90^\circ$ it is the flux emitted in a solid angle of $0,586\pi$ sr (corresponding to a cone with angle of 90°),

p) 'Display mechanism' means any screen, including tactile screen, or other visual technology used for displaying internet content to users,

r) 'Standby mode' means the condition of a light source or of a separate control gear, where it is connected to the power supply but the light source is intentionally not emitting light, and the light source or control gear is awaiting a control signal to return to a state with light emission, that lighting control parts enabling the standby function are in their control mode, non-lighting parts are disconnected or switched off or their power consumption are minimised following manufacturer's instructions,

s) 'Standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode,

ş) 'HL R7s' means a mains-voltage, double-capped, linear halogen light source with a cap diameter of 7 mm,

t) 'Flicker' means the perception of visual unsteadiness induced by a light stimulus, the luminance or spectral distribution of which fluctuates with time, for a static observer in a static environment, that the fluctuations can be periodic and non-periodic and may be induced by the light source itself, the power source or other influencing factors, that the metric is the parameter ' $P_{st} LM$ ', where 'st' stands for short term and 'LM' for light flickermeter method, as defined in standards, that a value $P_{st} LM = 1$ means that the average observer has a 50 % probability of detecting flicker,

u) 'Luminance' (in a given direction, at a given point of a real or imaginary surface) means the luminous flux transmitted by an elementary beam passing through the given point and propagating in the solid angle containing the given direction divided by the area of a section of that beam containing the given point (cd/m^2),

ü) 'Luminous intensity' means the quotient of the luminous flux leaving the source and propagated in the element of solid angle containing a given direction, by the element of solid angle, expressed in candela or cd,

v) 'Beam angle' of a directional light source means the angle between two imaginary lines in a plane through the optical beam axis, such that these lines pass through the centre of the front face of the light source and through points at which the luminous intensity is 50 % of the centre beam intensity, where the centre beam intensity is the value of luminous intensity measured on the optical beam axis, for light sources that have different beam angles in different planes, the largest beam angle shall be the one taken into account, for light sources with user-controllable beam angle, the beam angle corresponding to the 'reference control setting' shall be the one taken into account,

y) '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;

z) 'Second envelope' means a second outer envelope on an HID light source that is not required for the production of light, such as an external sleeve for preventing mercury and glass release into the environment in case of lamp breakage, that the HID arc tubes are not count as the envelope in determining the presence of the second envelope,

aa) 'Quick response' (QR) code means a matrix barcode included on the energy label of a product model that links to that model's information in the public part of the product database,

bb) 'Compact fluorescent light source' (CFL) means a single-capped fluorescent light source with a bent-tube construction designed to fit in small spaces, that may be primarily spiral-shaped (i.e. curly forms) or primarily shaped as connected multiple parallel tubes, with or without a second bulb-like envelope, that are available with (CFLi) or without (CFLni) a physically integrated control gear,

cc) 'Control mode' means the condition of lighting control parts where they are connected to the light source and/or to the separate control gear and performing their functions in such a way that a control signal can be internally generated or a remotely initiated trigger can be received, by wire or wireless, and processed to lead to a change in the light emission of the light source or to a corresponding desired change in the power supply by the separate control gear,

çç) 'Control signal' means an analogue or digital signal transmitted to the light source or separate control gear wirelessly or wired either via voltage modulation in separate control cables or via a modulated signal in the supply voltage, that the signal transmission is not through a network but e.g. from an internal source or from a remote control delivered with the product,

dd) 'LFL T5-HE' means a high-efficiency linear fluorescent T5 light source with driving current lower than 0,2 A,

ee) 'LFL T5-HO' means a high-output linear fluorescent T5 light source with driving current higher than or equal to 0,2 A,

ff) 'Lumen maintenance factor' (XLMF) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux,

gg) 'Metal halide light source' (MH) means a high intensity discharge light source in which the light is produced by radiation from a mixture of metallic vapour, metal halides and the products of the dissociation of metal halides, that may have one ('single-ended') or two ('double-ended') connectors to their electricity supply, whose material for the arc tube can be quartz (QMH) or ceramic (CMH),

ğğ) 'Average luminance' (Luminance-HLLS) for a LED light source means the average luminance over a light-emitting area where the luminance is more than 50 % of the peak luminance (cd/mm²),

hh) 'Lifetime' for LED and OLED light sources means the time in hours between the start of their use and the moment when for 50 % of a population of light sources the light output has gradually degraded to a value below 70 % of the initial luminous flux, that is also referred to as the L70B50 lifetime,

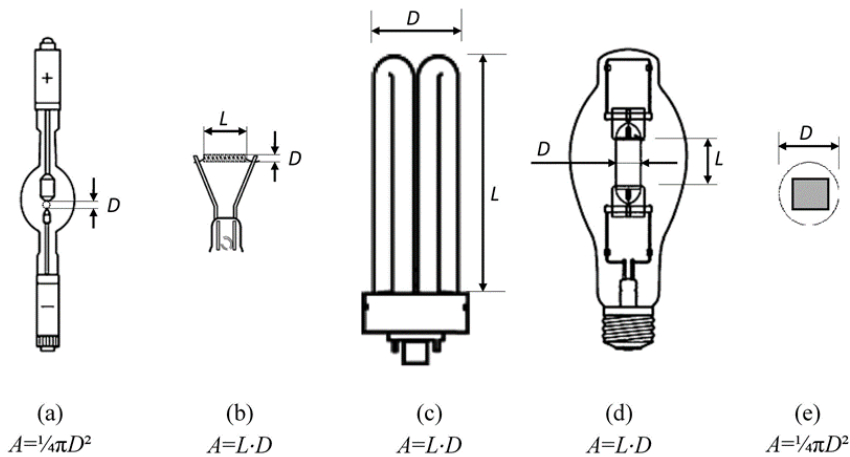
11) 'Projected light-emitting surface area (A)' is the surface area in mm² (square millimetres) of the view in an orthographic projection of the light-emitting surface from the direction with the highest light intensity,

1) The light-emitting surface area is the surface area of the light source that emits light with the declared optical characteristics, such as the approximately spherical surface of an arc (a), cylindrical surface of a filament coil (b) or a gas discharge lamp (c, d), flat or semi-spherical envelope of a light-emitting diode (e).

2) For light sources with a non-clear envelope or with anti-glare shield, the light-emitting surface area is the entire area through which light leaves the light source.

3) For light sources containing more than one light emitter, the projection of the smallest gross volume enveloping all emitters shall be taken as the light-emitting surface.

4) For HID light sources definition (a) applies, unless the dimensions defined in (d) apply with $L > D$, where L is the distance between the electrode tips and D the inner diameter of the arc tube.



ii) 'Reference control settings' (RCS) means a control setting or a combination of control settings that is used to verify compliance of a light source with this Communiqué.

1) These settings are relevant for light sources that allow the end-user to control, manually or automatically, directly or remotely, the luminous intensity, colour, correlated colour temperature, spectrum, and/or beam angle of the emitted light,

2) In principle, the reference control settings shall be those predefined by the manufacturer as factory default values and encountered by the user at first installation (out-of-the-box values). If the installation procedure provides for an automatic software update during first installation, or if the user has the option to perform such an update, the resulting change in settings (if any) shall be taken into account.

3) If the out-of-the-box value is deliberately set differently from the reference control setting (e.g. at low power for safety purposes), the manufacturer shall indicate in the technical documentation how to recall the reference control settings for compliance verification and provide a technical justification why the out-of-the-box value is set differently from the reference control setting.

4) The light source manufacturer shall define the reference control settings such that:

(a) The light source is within the scope of this Communiqué according to Article 2 and none of the conditions for exemption applies;

(b) Lighting control parts and non-lighting parts are disconnected or switched-off or, in case this is not possible, the power consumption of these parts is minimal;

(c) The full-load condition is obtained;

(ç) When the end-user opts to reset factory defaults, the reference control settings are obtained.

5) For light sources that allow the manufacturer of a containing product to make implementation choices that influence light source characteristics (e.g. definition of the operating current(s); thermal design), and that cannot be controlled by the end-user, the reference control settings need not be defined. In that case the nominal test conditions as defined by the light source manufacturer apply,

jj) ‘R9’ means the colour rendering index for a red coloured object as defined in standards,

kk) ‘Colour-tuneable light source’ (CTLS) means a light source that can be set to emit light with a large variety of colours outside the range defined in Article 5 but can also be set to emit white light inside the range defined in Article 5 for which the light source is within the scope of this Communiqué (Tuneable-white light sources that can only be set to emit light, with different correlated colour temperatures, within the range defined in Article 5, and dim-to-warm light sources that shift their white light output to lower correlated colour temperature when dimmed, simulating the behaviour of incandescent light sources, are not considered CTLS);

ll) ‘Colour consistency’ means the maximum deviation of the initial (after a short period of time), spatially averaged chromaticity coordinates (x and y) of a single light source from the chromaticity centre point (cx and cy) declared by the manufacturer or the importer, expressed as the size (in steps) of the MacAdam ellipse formed around the chromaticity centre point (cx and cy),

mm) ‘Stroboscopic effect’ means a change in motion perception induced by a light stimulus, the luminance or spectral distribution of which fluctuates with time, for a static observer in a non-static environment, that the fluctuations can be periodic and non-periodic and may be induced by the light source itself, the power source or other influencing factors that the metric for the stroboscopic effect is the ‘SVM’ (stroboscopic visibility measure), as defined in standards, that $SVM = 1$ represents the visibility threshold for an average observer,

nn) ‘Non-clear envelope’ for an HID light source means a non-transparent outer envelope or outer tube in which the light producing arc tube is not visible,

oo) ‘T2’, ‘T5’, ‘T8’, ‘T9’ and ‘T12’ means a tubular light source with a diameter of approximately 7, 16, 26, 29 and 38 mm respectively, as defined in standards. The tube can be straight (linear) or bent (e.g. U-shaped, circular),

öö) ‘Full-load’ means the condition of a light source, within the declared operating conditions, in which it emits the maximum (undimmed) luminous flux; or the operating

conditions and loads of the control gear under efficiency measurement as specified in the relevant standards,

pp) 'Excitation purity' means a percentage computed for a CTLS set to emit light of a certain colour, using a procedure further defined in standards, by drawing a straight line on an (x and y) colour space graph from a point with colour coordinates $x = 0,333$ and $y = 0,333$ (achromatic stimulus point), going through the point representing the (x and y) colour coordinates of the light source (point (2), and ending on the outer border of the colour space (locus; point (3) that is computed as the distance between points 1 and 2 divided by the distance between points 1 and 3, the full length of the line representing 100 % colour purity (point on the locus), the achromatic stimulus point representing 0 % colour purity (white light);

rr) 'Remotely initiated trigger' means a signal that comes from outside the light source or separate control gear via a network,

ss) 'Data-connection parts' means parts that perform any one of the following functions:

1) reception or transmission of wired or wireless data signals and the processing thereof (used to control the light emission function and possibly otherwise);

2) sensing and processing of the sensed signals (used to control the light emission function and possibly otherwise);

3) a combination of these;

§§) 'Anti-glare shield' means a mechanical or optical reflective or non-reflective impervious baffle designed to block direct visible radiation emitted from the light emitter in a directional light source, in order to avoid temporary partial blindness (disability glare) if viewed directly by an observer, that does not include surface coating of the light emitter in the directional light source,

tt) 'Displacement factor ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current, that is used for mains light sources using LED- or OLED-technology, that is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions,

uu) 'High-pressure mercury light source' means a high intensity discharge light source in which the major portion of light is produced, directly or indirectly, by radiation from predominantly vaporised mercury operating at a partial pressure in excess of 100 kilopascals,

üü) 'High-luminance light source' (HLLS) means a LED light source with an average luminance greater than 30 cd/mm² in the direction of peak intensity,

ENERGY EFFICIENCY CLASSES AND CALCULATION METHOD

1. The energy efficiency class of light sources shall be determined as set out in Table 1, on the basis of the total mains efficacy η_{TM} , which is calculated by dividing the declared useful luminous flux Φ_{use} (expressed in lm) by the declared on-mode power consumption P_{on} (expressed in W) and multiplying by the applicable factor F_{TM} of Table 2, as follows:

$$\eta_{TM} = (\Phi_{use}/P_{on}) \times F_{TM} (lm/W)$$

Table 1
Energy efficiency classes of light sources

Energy efficiency class	Total mains efficacy η_{TM} (lm/W)
A	$210 \leq \eta_{TM}$
B	$185 \leq \eta_{TM} < 210$
C	$160 \leq \eta_{TM} < 185$
D	$135 \leq \eta_{TM} < 160$
E	$110 \leq \eta_{TM} < 135$
F	$85 \leq \eta_{TM} < 110$
G	$\eta_{TM} < 85$

Table 2
Factors F_{TM} by Light Source Type

Light source type	Factor F_{TM}
Non-directional (NDLS) operating on mains (MLS)	1.000
Non-directional (NDLS) not operating on mains (NMLS)	0.926
Directional (DLS) operating on mains (MLS)	1.176
Directional (DLS) not operating on mains (NMLS)	1.089

LABEL FOR LIGHT SOURCES

1. LABEL

a) If the light source is intended to be marketed through a point of sale, a label produced in the format and containing information as set out in this Annex is printed on the individual packaging.

b) Suppliers shall choose a label format between point 1.1 and point 1.2 of this Annex.

c) The label shall be:

- For the standard-sized label, at least 36 mm wide and 72 mm high,

- For the small-sized label (width less than 36 mm), at least 20 mm wide and 54 mm high.

ç) The packaging shall not be smaller than 20 mm wide and 54 mm high.

d) Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above. The small-sized label shall not be used on packaging with a width of 36 mm or more.

e) The label and the arrow indicating the energy efficiency class may be printed in black and white as specified in points 1.1 and 1.2, only if all other information, including graphics, on the packaging is printed in black and white.

f) If the label is not printed on the part of the packaging meant to face the prospective customer, an arrow containing the letter of the energy efficiency class shall be displayed as hereafter, with the colour of the arrow matching the letter and the colour of the energy class. The size shall be such that the label is clearly visible and legible. The letter in the energy efficiency class arrow shall be Calibri Bold and positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in 100 % black placed around the arrow and the letter of the efficiency class.



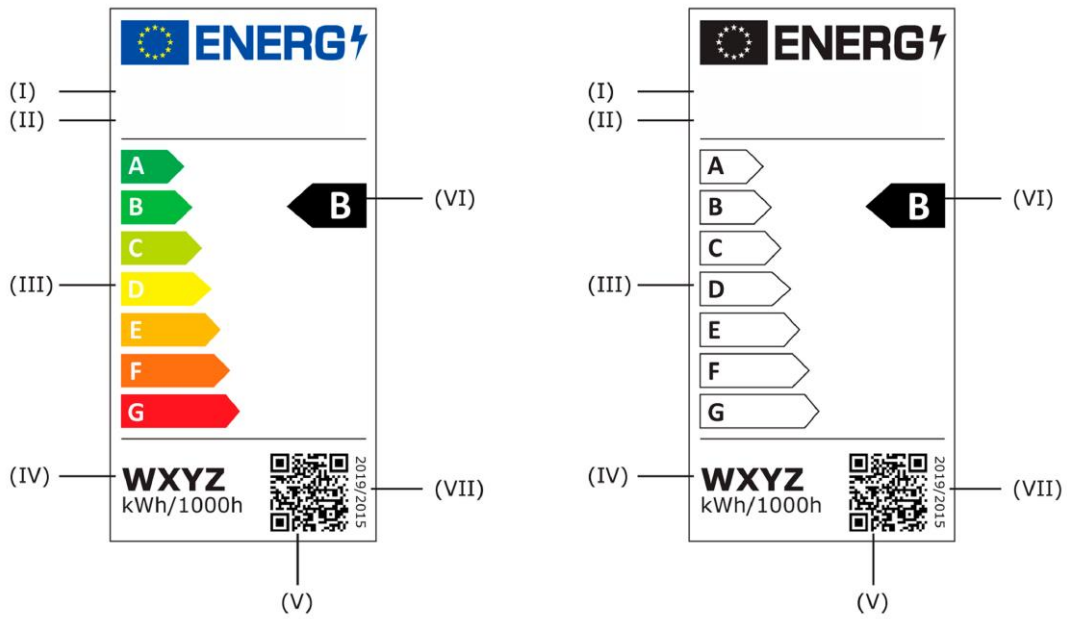
Figure 1

Coloured/Black and white left/right arrow for the part of the packaging facing the prospective customer

g) In the case referred to in point 1(d) of Article 7 the rescaled label shall have a format and size that permits it to cover and adhere to the old label.

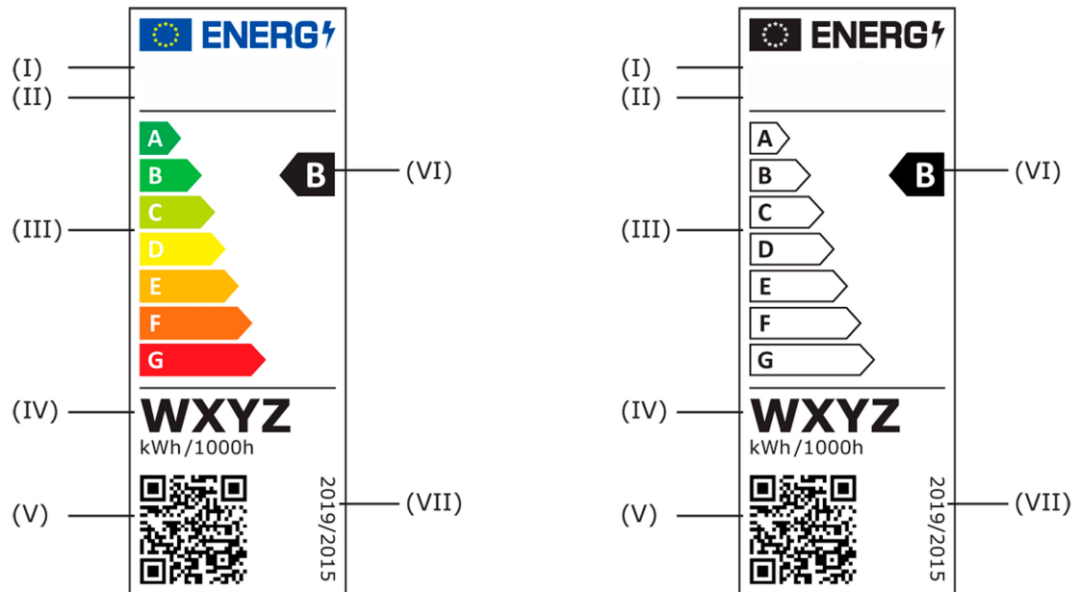
1.1. Standard-sized label:

a) The label shall be as shown below.



1.2. Small-sized label:

a) The label shall be as shown below



1.3. The following information shall be included in the label for light sources:

I. supplier's name or trade mark;

II. supplier's model identifier;

III. scale of energy efficiency classes from A to G;

IV. the energy consumption, expressed in kWh of electricity consumption per 1 000 hours, of the light source in on-mode;

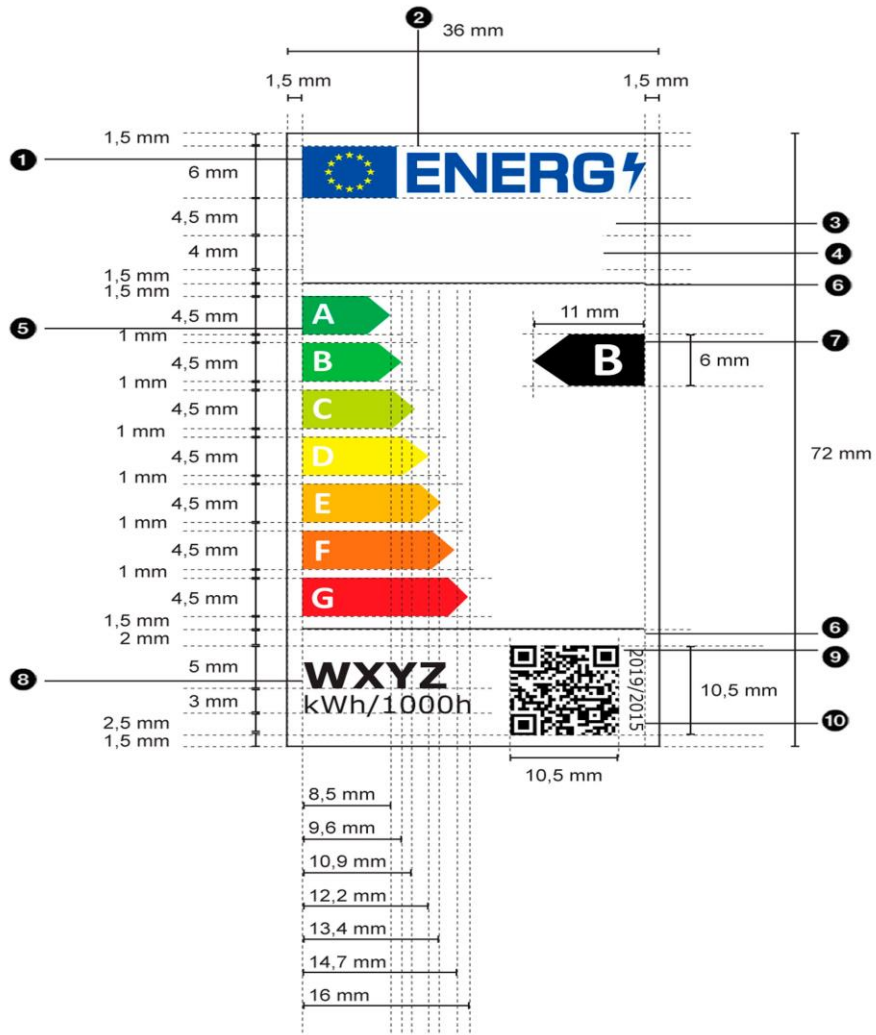
V. QR-code;

VI. the energy efficiency class in accordance with Annex II;

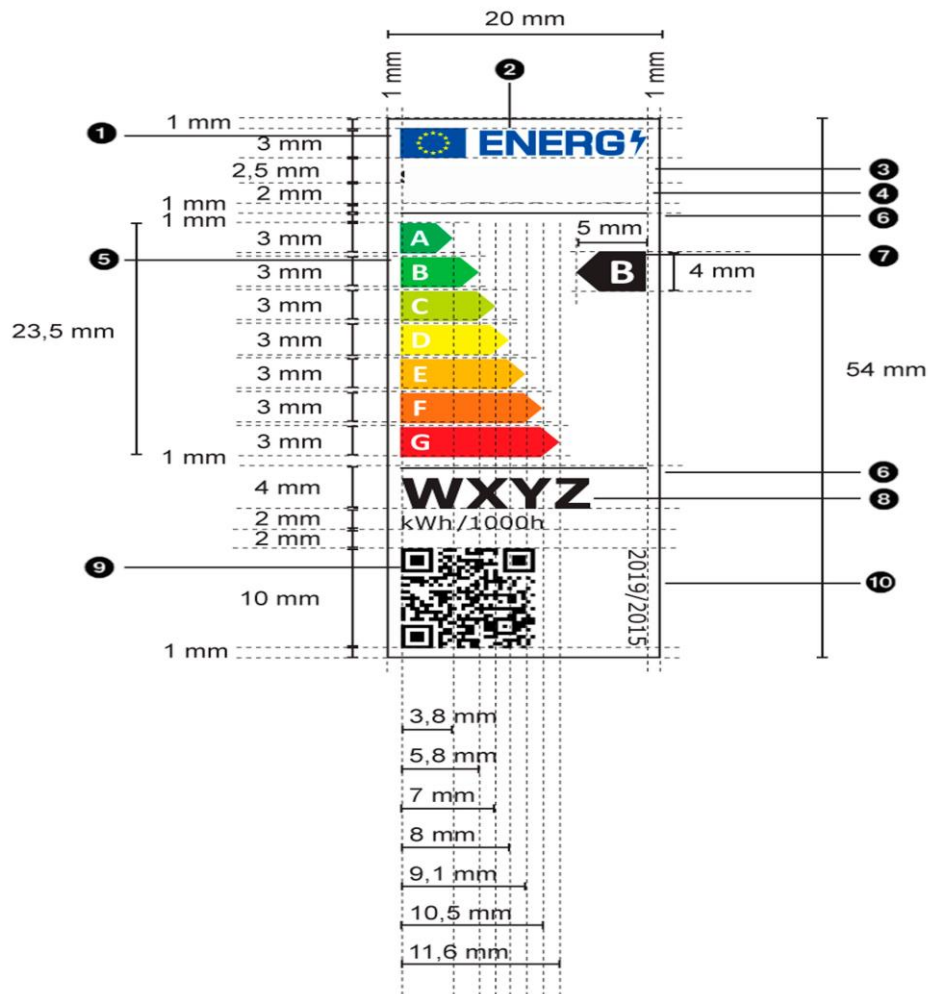
VII. The number of this Communique in the form of 2019/2017/EU corresponding to the EU legislation

2. LABEL DESIGNS

2.1. Standard-sized label:



2.2. Small-sized label:



Whereby:

a) The dimensions and specifications of the elements constituting the labels shall be as indicated in Article 1 of this Annex and in the label designs for standard-sized and small sized labels for light sources.

b) The background of the label shall be 100 % white.

c) The typefaces shall be Verdana and Calibri.

ç) Colours shall be CMYK – cyan, magenta, yellow and black, following this example: 0-70-100-0: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black.

d) The labels shall fulfil all the following requirements (numbers refer to the figures above):

- 1 The colours of the EU logo shall be as follows.
 - the background: 100,80,0,0
 - the stars: 0,0,100,0
- 2 The colour of the energy logo shall be: 100,80,0,0
- 3 The supplier's name shall be 100 % black and in Verdana Bold 8 pt – 5 pt (standard-sized – small-sized label).

- ④ The model identifier shall be 100 % black and in Verdana Regular 8 pt – 5 pt (standard-sized – small-sized label).
- ⑤ The A to G scale shall be as follows;
 - The letters of the energy efficiency scale shall be 100 % white and in Calibri Bold 19 pt; the letters shall be centred on an axis at 4,5 mm from the left side of the arrows.
 - The colours of A to G scale arrows shall be as follows.
 - A-class: 100,0,100,0
 - B-class: 70,0,100,0
 - C-class: 30,0,100,0
 - D-class: 0,0,100,0
 - E-class: 0,30,100,0
 - F-class: 0,70,100,0
 - G-class: 0,100,100,0
- ⑥ The rectangular border of the label and the internal dividers shall have a weight of 0,5 pt and the colour shall be 100 % black.
- ⑦ The letter of the energy efficiency class shall be 100 % white and in Calibri Bold 16 pt – 10 pt (standard-sized – small-sized label). The energy efficiency class arrow and the corresponding arrow in the A to G scale shall be positioned in such a way that their tips are aligned. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow which shall be 100 % black.
- ⑧ The energy consumption value shall be in Verdana Bold 12 pt; ‘kWh/1 000h’ shall be in Verdana Regular 8 pt – 5 pt (standard-sized – small-sized label), 100 % black.
- ⑨ The QR code shall be 100 % black.
- ⑩ The number of the correspondence of the Communiqué in the EU legislation shall be 100 % black and in ‘Verdana Regular’ 5 pt.

EXEMPTIONS

1. This Communique shall not apply to light sources specifically tested and approved to operate:

a) In radiological and nuclear medicine installations that are subject to radiation safety standards as set out in " Regulation on Protection from Radiation in Nuclear Facilities" published in the Official Gazette dated 29/05/2018 and numbered 30435,

b) For emergency use,

c) In or on military or civil defence establishments, equipment, ground vehicles, marine equipment or aircraft,

ç) In or on motor vehicles, their trailers and systems, interchangeable towed equipment, components and separate technical units as set out in "Type Approval Regulation on General Safety of Motor Vehicles and Trailers, Systems, Components and Separate Technical Units Designed for Them" published in the Official Gazette dated 25/1/2012 and numbered 28184 (661/2009 / EC), "Regulation on Type Approval and Market Surveillance and Inspection of Agricultural and Forestry Vehicles (EU / 167/2013)" published in the Official Gazette dated 14/08/2014 and numbered 29088 and "Regulation on the Type Approval and Market Surveillance and Inspection of Two- or Three-Wheel Motor Vehicles and Four-Wheel Motorcycles (EU / 168/2013)" published in the Official Gazette dated 22/08/2015 and numbered 29453,

d) in or on non-road mobile machinery and in or on their trailers as set out in the Regulation on Gas and Particulate Pollutant Emission Limits and Requirements Regarding Type Approval for Internal Combustion Engines Installed on Moving Machines Used Out of the Highway, published in the Official Gazette dated 11/9/2020 and numbered 31241,

e) In or on interchangeable equipment as set out in "Machinery Safety Regulation (2006/42 / AT)" published in the Official Gazette dated 03/03/2009 and numbered 27158 intended to be towed or to be mounted and fully raised from the ground or that cannot articulate around a vertical axis when the vehicle to which it is attached is in use on a road by vehicles as set out in "Regulation on Type Approval and Market Surveillance and Inspection of Agricultural and Forestry Vehicles (EU/167/2013)",

f) In or on civil aviation aircraft,

g) In railway vehicle lighting, as set out in "Railway Vehicles and Main Parts Type Approval Regulation" published in the Official Gazette dated 18/11/2015 and numbered 29536,

(i) in marine equipment, as set out in "Marine Equipment Regulation" published in the Official Gazette dated 23/10/2005 and numbered 25975,

(j) In medical devices, as set out in "Medical Device Regulation" published in the Official Gazette dated 07/06/2011 and numbered 27957 and in vitro medical devices as set out in "Regulation on Medical Diagnostic Devices Used Outside the Body (In Vitro)" published in the Official Gazette dated 09/01/2007 and numbered 26398.

2. For the purpose of point 1, 'specifically tested and approved' means that the light source;

- Has been specifically tested for the mentioned operating condition or application, according to the legislation mentioned or related implementing measures, or relevant national or international standards, or, in the absence of these, according to relevant Member States legislation and,

- Is accompanied by evidence, to be included in the technical documentation, in the form of a certificate, a type approval mark, a test report, that the product has been specifically approved for the mentioned operating condition or application and,

- Is placed on the market specifically for the mentioned operating condition or application, as evidenced at least by the technical documentation, and except for point (ç), information on the packaging and any advertising or marketing materials.

2. In addition, this Communique shall not apply to:

a) Electronic displays (e.g. televisions, computer monitors, notebooks, tablets, mobile phones, e-readers, game consoles), including but not limited to displays within the scope of been specifically tested for the mentioned operating condition or application, according to the legislation mentioned or related implementing measures, or relevant national or international standards, or, in the absence of these, according to relevant Member States legislation and;

b) Light sources in range hoods within the scope of the Communique on Energy Labeling of Domestic Ovens and Range Hoods (SGM: 2015/8) published in the Official Gazette dated 14/01/2015 and numbered 29236,

c) Light sources and separate control gears in battery-operated products, including but not limited to e.g. torches, mobile phones with an integrated torch light, toys including light sources, desk lamps operating only on batteries, armband lamps for cyclists, solar-powered garden lamps,

ç) Light sources on bicycles and other non-motorised vehicles,

d) Light sources for spectroscopy and photometric applications, such as for example UV-VIS spectroscopy, molecular spectroscopy, atomic absorption spectroscopy, nondispersive infrared (NDIR), fourier-transform infrared (FTIR), medical analysis, ellipsometry, layer thickness measurement, process monitoring or environmental monitoring.

4. Any light source within the scope of this Communique shall be exempt from the requirements of this Communique, with the exception of the requirements set out in point 4 of Annex V, if it is specifically designed and marketed for its intended use in at least one of the following applications.

a) Signalling (including, but not limited to, road-, railway-, marine- or air traffic- signalling, traffic control or airfield lamps) ;

b) Image capture and image projection (including, but not limited to, photocopying, printing (directly or in pre-processing), lithography, film and video projection, holography) ;

c) Light sources with specific effective ultraviolet power $> 2 \text{ mW/klm}$ and intended for use in applications requiring high UV-content

ç) Light sources with a peak radiation around 253,7 nm and intended for germicidal use (destruction of DNA);

d) Light sources emitting 5 % or more of total radiation power of the range 250-800 nm in the range of 250-315 nm and/or 20 % or more of total radiation power of the range 250-800 nm in the range of 315-400 nm, and intended for disinfection or fly trapping;

e) Light sources having the primary purpose to emit radiation around 185,1 nm and intended to be used for the generation of ozone;

f) light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 400-480 nm, and intended for coral zooxanthellae symbioses;

g) FL light sources emitting 80 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning;

ğ) HID light sources emitting 40 % or more of total radiation power of the range 250-800 nm in the range of 250-400 nm, and intended for sun-tanning;

h) Light sources with a photosynthetic efficacy $> 1,2 \mu\text{mol/J}$, and/or emitting 25 % or more of total radiation power of the range 250-800 nm in the range of 700-800 nm, and intended for use in horticulture;

ı) Within the scope of the Law on Intellectual and Artistic Works No. 5846, LED or OLED light sources made by the artist him/herself in a limited number below 10 pieces.

i) Incandescent light sources with blade contact-, metal lug-, cable-, litz wire-, metric thread-, pin base- or non- standard customised electrical interface, encasing made from quartz-glass tubes, specifically designed and exclusively marketed for industrial or professional electro-heating equipment (e.g. stretch blow-moulding process in PET-Industry, 3D-printing, photovoltaic and electronic manufacturing processes, drying or hardening of adhesives, inks, paints or coatings).

5. Light sources specifically designed and exclusively marketed for use in products in the scope of Communiqué on Ecodesign Requirements For Household Washing Machines And Household Washer-Dryers (2019/2023/EU) (SGM: 2021/3) published in the Official Gazette dated... and numbered..., Communiqué on Ecodesign Requirements of Household Dishwashers (2019/2022 / EU) (SGM: 2021/1) published in the Official Gazette dated... and numbered..., Communiqué on Ecodesign Requirements for Household Tumble Dryers (SGM-2013/2) published in the Official Gazette dated 17/7/2013 and numbered 28710 and Communiqué on Ecodesign Requirements for Refrigerating Appliances (2019/2019/EU) (SGM: 2021/7) published in the Official Gazette dated... and numbered..., shall be exempt from the requirements of points 1(d)(7b), 1(d)(7c) and 1(d)(7d) of Annex VI to this Communiqué.

PRODUCT INFORMATION

1. PRODUCT INFORMATION SHEET

1.1. Pursuant to point 6(b) of Article 6 to this Communique, the supplier shall enter into the product database the information as set out in Table 3, including when the light source is a part in a containing product.

Table 3

Product information sheet

Supplier's name or trade mark ^{a,d} :			
Supplier's address ^{a,d} :			
Model identifier ^d :			
Type of light source			
Lighting technology used:	[HL/LFL T5 HE/LFL T5 HO/CFLni/other FL/HPS/MH/other HID/LED/OLED/ mixed/other]	Non-directional or directional:	[NDLS/DLS]
Light source cap-type (or other electric interface)	[free text]		
Mains or non-mains:	[MLS/NMLS]	Connected light source (CLS):	[yes/no]
Colour-tuneable light source:	[yes/no]	Envelope:	[no/second/non-clear]
High luminance light source:	[yes/no]		
Anti-glare shield:	[yes/no]	Dimmable:	[yes/only with specific dimmers/no]
Product parameters			
Parameter	Value	Parameter	Value
<i>General product parameters:</i>			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	X	Energy efficiency class	[A/B/C/D/E/F/G] ^(b)

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)	x in [sphere/wide cone/narrow cone]	Correlated colour temperature, rounded to the nearest 100 K, or the range of correlated colour temperatures, rounded to the nearest 100 K, that can be set	[x/x...x/x or x (or x...)]	
On-mode power (P_{on}), expressed in W	x,x	Standby power (P_{sb}), expressed in W and rounded to the second decimal	x,xx	
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal	x,xx	Colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set	[x/x...x]	
Outer dimensions ^{a,d} without separate control gear, lighting control parts and non-lighting control parts, if any (millimetre)	Height	X	Spectral power distribution in the range 250 nm to 800 nm, at full-load	[graphic]
	Width	X		
	Depth	X		
Claim of equivalent power ^c	[yes/-]	If yes, equivalent power (W)	X	
		Chromaticity coordinates (x and y)	0,xxx 0,xxx	

Parameters for directional light sources:

Peak luminous intensity (cd)	X	Beam angle in degrees, or the range of beam angles that can be set	[x/x...x]
<i>Parameters for LED and OLED light sources:</i>			
R9 colour rendering index value	X	Survival factor	x,xx
the lumen maintenance factor	x,xx		
<i>Parameters for LED and OLED mains light sources:</i>			
displacement factor (cos φ1)	x,xx	Colour consistency in McAdam ellipses	x
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	[Yes/-] ^d	If yes then replacement claim (W)	x
Flicker metric (Pst LM)	x,x	Stroboscopic effect metric (SVM)	x,x

^a Changes to these items shall not be considered relevant for the purposes of point 3 of Article 6 of Regulation on Setting a Framework for Energy Labelling (1369/2017/EU)

^b If the product database automatically generates the definitive content of this cell the supplier shall not enter these data.

^c ‘-’: not applicable;

‘yes’: An equivalence claim involving the power of a replaced light source type may be given only,

- For directional light sources, if the light source type is listed in Table 4 and if the luminous flux of the light source in a 90 ° cone (Φ90°) is not lower than the corresponding reference luminous flux in Table 4. The reference luminous flux shall be multiplied by the correction factor in Table 5. For LED light sources, it shall be in addition multiplied by the correction factor in Table 6.

- For non-directional light sources, the claimed equivalent incandescent light source power (in watt, rounded to the integer) shall be that corresponding in Table 7 to the luminous flux of the light source.

The intermediate values of both the luminous flux and the claimed equivalent light source power (in watt, rounded to the integer) shall be calculated by linear interpolation between the two adjacent values.

^e ‘-’: not applicable;

‘yes’: Claim that a LED light source replaces a fluorescent light source without integrated ballast of a particular wattage. However, this claim may be made in the following situations,

- The luminous intensity in any direction around the tube axis does not deviate by more than 25 % from the average luminous intensity around the tube and,
- The luminous flux of the LED light source is not lower than the luminous flux of the fluorescent light source of the claimed wattage. The luminous flux of the fluorescent light source shall be obtained by multiplying the claimed wattage with the minimum luminous efficacy value corresponding to the fluorescent light source in Table 8 and,
- The wattage of the LED light source is not higher than the wattage of the fluorescent light source it is claimed to replace.

The technical documentation file shall provide the data to support such claims.

^d Changes to this item shall not be considered relevant for the purpose of Article 4(1)(ç) of Energy Labelling Framework Regulation.

Table 4
Reference luminous flux for equivalence claims

Extra-low voltage reflector type		
Type	Power (W)	Reference ϕ_{90° (lm)
MR11 GU4	20	160
	35	300
MR16 GU 5.3	20	180
	35	300
	50	540
AR111	35	250
	50	390
	75	640
	100	785
Mains-voltage blown glass reflector type		
Type	Power (W)	Reference ϕ_{90° (lm)
R50/NR50	25	90
	40	170
R63/NR63	40	180
	60	300
R80/NR80	60	300
	75	350
	100	580
R95/NR95	75	350
	100	540
R125	100	580
	150	1 000
Mains-voltage pressed glass reflector type		
Type	Power (W)	Reference ϕ_{90° (lm)
PAR16	20	90

	25	125
	35	200
	50	300
PAR20	35	200
	50	300
	75	500
PAR25	50	350
	75	550
PAR30S	50	350
	75	550
	100	750
PAR36	50	350
	75	550
	100	720
PAR38	60	400
	75	555
	80	600
	100	760
	120	900

Table 5

Multiplication factors for lumen maintenance

Light source type	Luminous flux multiplication factor
Halogen light sources	1
Fluorescent light sources	1.08
LED light sources	$1 + 0.5 \times (1 - \text{LLMF})$ where LLMF is the lumen maintenance factor at the end of the declared lifetime

Table 6

Multiplication factors for LED light sources

LED light source beam angle	Luminous flux multiplication factor
$20^\circ \leq \text{beam angle}$	1
$15^\circ \leq \text{beam angle} < 20^\circ$	0.9
$10^\circ \leq \text{beam angle} < 15^\circ$	0.85
beam angle $< 10^\circ$	0.80

Table 7

Equivalence claims for non-directional light sources

Light source luminous flux Φ (lm)	Claimed equivalent incandescent light source power (W)
136	15
249	25

470	40
806	60
1055	75
1521	100
2452	150
3452	200

Table 8
T8 ve T5 ışık kaynaklarına ilişkin asgari verim değerleri

T8 (26 mm Ø)		T5 (16 mm Ø) High Efficiency		T5 (16 mm Ø) High Output	
Claimed equivalent power (W)	Minimum luminous efficacy (lm/W)	Claimed equivalent power (W)	Minimum luminous efficacy (lm/W)	Claimed equivalent power (W)	Minimum luminous efficacy (lm/W)
15	63	14	86	24	73
18	75	21	90	39	79
25	76	27	93	49	88
30	80	35	94	54	82
36	93			80	77
38	87				
58	90				
70	89				

1.2. For light sources that can be tuned to emit light at full-load with different characteristics, the values of parameters that vary with these characteristics shall be reported at the reference control settings.

1.3. If the light source is no longer placed on the market, the supplier shall put in the product database or its own website the date (month, year) when the placing on the market stopped.

2. INFORMATION TO BE DISPLAYED IN THE DOCUMENTATION FOR A CONTAINING PRODUCT

2.1. If a light source is placed on the market as a part in a containing product, the technical documentation for the containing product shall clearly identify the contained light source(s), including the energy efficiency class.

2.2. If a light source is placed on the market as a part in a containing product, the following text shall be displayed, clearly legible, in the user manual or booklet of instructions.

- ‘This product contains a light source of energy efficiency class <X>’,

where <X> shall be replaced by the energy efficiency class of the contained light source.

- If the product contains more than one light source, the sentence can be in the plural, or repeated per light source, as suitable.

3. INFORMATION TO BE DISPLAYED ON THE SUPPLIER'S FREE ACCESS WEBSITE

- a) The reference control settings, and instructions on how they can be implemented, where applicable,
- b) Instructions on how to remove lighting control parts and/or non-lighting parts, if any, or how to switch them off or minimize their power consumption,
- c) If the light source is dimmable: a list of dimmers it is compatible with, and the light source — dimmer compatibility standard(s) it is compliant with, if any,
- ç) If the light source contains mercury: instructions on how to clean up the debris in case of accidental breakage,
- d) Recommendations on how to dispose of the light source at the end of its life in line with Regulation on Control of Waste Electric Electronic Goods published in the Official Gazette dated 22/05/2012

4. INFORMATION FOR PRODUCTS SPECIFIED IN POINT 4 OF ANNEX IV

- a) For the light sources specified in point 4 of Annex IV, their intended use shall be stated on all forms of packaging, product information and advertisement, together with a clear indication that the light source is not intended for use in other applications.
- b) The technical documentation file drawn up for the purposes of conformity assessment, in accordance with point 5 of Article 5 of Energy Labelling Framework Regulation (2017/1369/AB) shall list the technical parameters that make the product design specific to qualify for the exemption.

TECHNICAL DOCUMENTATION

1. The technical documentation referred to in point 1(ç) of Article 6 shall include:

- a) The name and address of the supplier,
- b) Supplier's model identifier,
- c) The model identifier of all equivalent models already placed on the market,
- ç) Identification and signature of the person empowered to bind the supplier;
- d) The declared values for the following technical parameters; these values are considered as the declared values for the purpose of the verification procedure in Annex IX:
 - 1) Useful luminous flux (Φ_{use}) in lm,
 - 2) Colour rendering index (CRI),
 - 3) On-mode power (P_{on}) in W,
 - 4) Beam angle in degrees for directional light sources (DLS),
 - (4a) Peak luminous intensity in cd for directional light sources (DLS),
 - 5) Correlated colour temperature (CCT) in K,
 - 6) 'standby power (P_{sb}) in W, including when it is zero,
 - 7) Networked standby power (P_{net}) in W for connected light sources (CLS),
 - 7a) R9 colour rendering index value for LED and OLED light sources,
 - 7b) survival factor for LED and OLED light sources,
 - 7c) lumen maintenance factor for LED and OLED light sources,
 - 7d) indicative lifetime L70B50 for LED and OLED light sources,
 - 8) Displacement factor ($\cos \phi_1$) for LED and OLED mains light sources,
 - 9) Colour consistency in MacAdam ellipse steps for LED and OLED light sources,
 - 10) Luminance-HLLS in cd/mm^2 (only for HLLS),
 - 11) Flicker metric (P_{stLM}) for LED and OLED light sources,
 - 12) stroboscopic effect metric (SVM) for LED and OLED light sources,
 - 13) Excitation purity, only for CTLS, for the following colours and dominant wavelength within the given range;

Colour Dominant wave-length range

Blue 440 nm — 490 nm

Green 520 nm — 570 nm

Red 610 nm — 670 nm

e) The calculations performed with the parameters, including the determination of the energy efficiency class,

f) References to the harmonised standards applied or other standards used,

g) Testing conditions if not described sufficiently in point (f),

ğ) The reference control settings, and instructions on how they can be implemented, where applicable,

h) Instructions on how to remove lighting control parts and/or non-lighting parts, if any, or how to switch them off or minimise their power consumption during light source testing,

i) Specific precautions that shall be taken when the model is assembled, installed, maintained or tested.

2. The elements listed under point 1 shall also constitute the mandatory specific parts of the technical documentation that the supplier shall enter into the database.

**INFORMATION TO BE PROVIDED IN VISUAL ADVERTISEMENTS, IN
TECHNICAL PROMOTIONAL MATERIAL AND IN DISTANCE SELLING,
EXCEPT DISTANCE SELLING ON THE INTERNET**

1. In visual advertisements, for the purposes of ensuring conformity with the requirements laid down in point 1(d) of Article 6 and point 1(c) of Article 7, the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex.
2. In technical promotional material, for the purposes of ensuring conformity with the requirements laid down in point 1(e) of Article 6 and point 1(ç) of Article 7, the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex.
3. Any paper-based distance selling must show the energy class and the range of efficiency classes available on the label as set out in point 4 of this Annex.
4. The energy efficiency class and the range of energy efficiency classes shall be shown, as indicated in Figure 2 and this figure contains the features described below.
 - a) An arrow, containing the letter of the energy efficiency class in 100 % white, Calibri Bold and in a font size at least equivalent to that of the price, when the price is shown,
 - b) The colour of the arrow matching the colour of the energy efficiency class,
 - c) The range of available energy efficiency classes in 100 % black,
 - ç) The size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in 100 % black placed around the arrow and the letter of the energy efficiency class.
 - d) By way of derogation, if the visual advertisement, technical promotional material or paper-based distance selling is printed in black and white, the arrow can be in black and white in that visual advertisement, technical promotional material or paper-based distance selling.



Figure 2

Coloured/Black and white Left/Right Arrow, With Range Of Energy Efficiency Classes Indicated

5. Telemarketing-based distance selling must specifically inform the customer of the energy efficiency class of the product and of the range of energy efficiency classes available on the label. Thus the customer can access the full label and the product information sheet through the website of the product database or the website of the supplier, or by requesting a printed copy.

6. For all the situations mentioned in points 1, 2, 3 and 5, Upon customer request, a printed copy of the label and the product information sheet must be provided to the customer.

INFORMATION TO BE PROVIDED IN THE CASE OF DISTANCE SELLING ON THE INTERNET

1. The appropriate label made available by suppliers in accordance with point 1(f) Article 6 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 for the standard label in point 2 Annex III. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 3 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
2. The image used for accessing the label in the case of nested display, as indicated in Figure 3, shall;
 - a) Be an arrow in the colour corresponding to the energy efficiency class of the product on the label.
 - b) Indicate the energy efficiency class of the product on the arrow in 100 % white, Calibri Bold and in a font size equivalent to that of the price.
 - c) Have the range of available energy efficiency classes in 100 % black; and,
 - ç) Have one of the following two formats, and its size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a visible border in 100 % black placed around the arrow and the letter of the energy efficiency class.

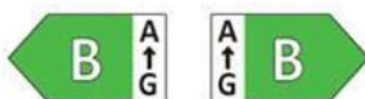


Figure 3: Coloured Left/Right Arrow, With Range Of Energy Efficiency Classes Indicated

3. In the case of nested display, the sequence of display of the label shall be as follows.
 - a) The image referred to in point 2 of this Annex shall be shown on the display mechanism in proximity to the price of the product;
 - b) The image shall link to the label set out in Annex III.
 - c) The label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image.
 - ç) The label shall be displayed by pop up, new tab, new page or inset screen display.

d) For magnification of the label on tactile screens, the device conventions for tactile magnification shall apply.

e) The label shall cease to be displayed by means of a close option or other standard-closing mechanism.

f) The alternative text for the graphic, to be displayed upon failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price.

4. The appropriate product information sheet made available by suppliers in accordance with point 1(g) of Article 6 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the product information sheet is clearly visible and legible. The product information sheet may be displayed using a nested display or by referring to the product database or supplier's own website, in which case the link used for accessing the product information sheet shall clearly and legibly indicate 'Product information sheet'. If nested display is used, the product information sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

VERIFICATION PROCEDURE FOR MARKET SURVEILLANCE PURPOSES

1. The verification tolerances defined in this Annex relate only to the verification by Ministry of the declared values and shall not be used by the supplier as an allowed tolerance to establish the values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means. The values and classes published on the label or in the product information sheet shall not be more favourable for the supplier than the values declared in the technical documentation.

2. Where a model has been designed to be able to detect it is being tested (e.g. by recognising the test conditions or test cycle), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in this Communiqué or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models shall be considered not compliant

3. As part of verifying the compliance of a product model with the requirements laid down in this Communiqué, the authorities of the Ministry shall apply the following procedure.

a) The Ministry shall verify one single unit of the model for points b(1) and b(2) of this Article of this Annex. However, the Ministry shall verify 10 units of the light source model for point b(3) of this Article of this Annex. The verification tolerances are laid down in Table 9 of this Annex.

b) The model shall be considered to comply with the applicable requirements if:

(1) The declared values given in the technical documentation pursuant to point 5 of Article 5 of Regulation on Setting a Framework for Energy Labelling (1369/2017/EU), and, where applicable, the values used to calculate these values, are not more favourable for the supplier than the corresponding values given in the test reports and,

(2) The values published on the label and in the product information sheet are not more favourable for the supplier than the declared values, and the indicated energy efficiency class is not more favourable for the supplier than the class determined by the declared values and,

(3) When the Ministry tests the units of the model, the determined values comply with the respective verification tolerances as given in Table 9 (where determined value means the arithmetical mean over the tested units of the measured values for a given parameter or the arithmetical mean of parameter values calculated from other measured values).

c) If the results referred to in point b(1), (2) or (3) are not achieved, the model and all equivalent models shall be considered not to comply with this Communiqué.

ç) The Ministry shall provide all relevant information to the Member States and to the Commission without delay after a decision is taken on the non-compliance of the model in accordance with point (c) of this Article of this Annex.

4. The Ministry shall only apply the verification tolerances that are set out in Table 9 and shall use only the procedure described in this Annex. For the parameters in Table 9, no other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 9
Verification tolerances

Parameter	Sample size	Verification tolerances
Full-load on-mode power P_{on} [W]:		
$P_{on} \leq 2W$	10	The determined value shall not exceed the declared value by more than 0,20 W.
$2W < P_{on} \leq 5W$	10	The determined value shall not exceed the declared value by more than 10 %.
$5W < P_{on} \leq 25W$	10	The determined value shall not exceed the declared value by more than 5 %..
$25W < P_{on} \leq 100W$	10	The determined value shall not exceed the declared value by more than 5 %.
$100W < P_{on}$	10	The determined value shall not exceed the declared value by more than 2,5 %.
Displacement factor [0-1]	10	The determined value shall not be less than the declared value minus 0,1 units.
Useful luminous flux ϕ_{use} [Lm]	10	The determined value shall not be less than the declared value minus 10 %.
Standby power P_{sb} and networked standby power P_{net} [W]	10	The determined value shall not exceed the declared value by more than 0,10 W.
CRI ve R9 [0-100]	10	The determined value shall not be less than the declared value by more than 2,0 units.
Flicker [Pst LM] and stroboscopic effect [SVM]	10	The determined value shall not exceed the declared value by more than 0,1 or by more than 10 % if the declared value is more than 1,0
Colour consistency [MacAdam ellips steps]	10	The determined number of steps shall not exceed the declared number of steps. The centre of the MacAdam ellipse shall be the centre declared by the supplier with a tolerance of 0,005 units.

Beam angle (degrees)	10	The determined value shall not deviate from the declared value by more than 25 %.
Total mains efficacy η_{TM} [lm/W]	10	The determined value (quotient) shall not be less than the declared value minus 5 %.
Lumen maintenance factor (for LED and OLED)	10	The determined $X_{LMF}\%$ of the sample shall not be less than $X_{LMF, MIN}\%$ according to the text in Annex V of Communique on Ecodesign Requirements of Light Sources and Separate Control Gears (SGM: 2021 /...) (2019/2020 / EU)
Survival factor (for LED and OLED)	10	At least 9 light sources of the test sample must be operational after completing the endurance test in Annex V of Communique on Ecodesign Requirements of Light Sources and Separate Control Gears (SGM: 2021 /...) (2019/2020 / EU)
Excitation purity [%]	10	The determined value shall not be less than the declared value minus 5 %.
Correlated colour temperature [K]	10	The determined value shall not deviate from the declared value by more than 10 %.
Peak luminous intensity [cd]	10	The determined value shall not deviate from the declared value by more than 25 %.

5. For light sources with linear geometry which are scalable but of very long length, such as LED strips or strings, verification testing of Ministry shall consider a length of 50 cm, or, if the light source is not scalable there, the nearest value to 50 cm. The light source supplier shall indicate which control gear is suitable for this length.

6. When verifying if a product is a light source, the Ministry shall compare the measured values for chromaticity coordinates (x and y), luminous flux, luminous flux density, and colour rendering index directly with the limit values set out in the definition for light source of Article 5 of this Communique, without applying any tolerances. If any of the 10 units in the sample satisfies the conditions for being a light source, the product model shall be considered to be a light source.

7. Light sources that allow the end-user to control, manually or automatically, directly or remotely, the luminous intensity, colour, correlated colour temperature, spectrum, and/or beam angle of the emitted light shall be evaluated using the reference control settings.