DRAFT COMMUNIQUE ON ENERGY LABELLING OF ELECTRONIC DISPLAYS (2019/2013/EU) (SGM:2021/6)

Objective

ARTICLE 1 – (1) The purpose of this Communique is to establish requirements for the labelling of, and the provision of supplementary product information on electronic displays, including televisions, monitors and digital signage displays related to the implementation of the Regulation on Setting a Framework for Energy Labelling (1369/2017/EU) published in the Official Gazette dated .../…/…and numbered …..

Scope

ARTICLE 2 – (1) This Communique shall apply to electronic displays, including televisions, monitors and digital signage displays.

(2) This Regulation shall not apply to the following electronic displays:

a) any electronic display with a screen area smaller than or equal to 100 square centimetres;

b) projectors;

c) all-in-one video conference systems;

ç) medical displays;

d) virtual reality headsets;

e) The products specified in the 6th paragraph of Article 2 of the Regulation on Control of Waste Electrical and Electronic Equipment published in the Official Gazette dated 22/05/2012 and numbered 28300, large and fixed industrial tools specified in Annex-1/A of the same Regulation and the implantation products specified in Annex- 1/B and the screens that are in infectious contact and the products listed below, integrated displays or the displays attached to these products,

1) Devices designed to be sent to space,

2) Large-scale stationary facilities, excluding any equipment not specially designed and installed as part of these facilities,

3) Person or goods transportation vehicles, except electric two-wheeled vehicles that are not type-approved,

4) Off-road moving vehicles for professional use only,

5) Specially designed device for research and development offered only on an inter-business basis.

f) electronic displays that are components or subassemblies of products covered by implementing measures adopted under the Regulation on Ecodesign of Energy Related Products" published in the Official Gazette dated 07/10/2010 and numbered 27722 within the framework of the Council of Ministers Decision numbered 2010/643,

g) broadcast displays;

ğ) security displays;

h) digital interactive whiteboards;

ı) digital photo frames;

i) digital signage displays which meet any of the following characteristics:

1) designed and constructed as a display module to be integrated as a partial image area of a larger display screen area and not intended for use as a standalone display device;

2) distributed self-contained in an enclosure for permanent outdoor use;

3) distributed self-contained in an enclosure with a screen area less than 30 dm^2 or greater than 130 dm^2;

4) the display has a pixel density less than 230 pixels/cm^2 or more than 3025 pixels/cm^2;

5) a peak white luminance in standard dynamic range (SDR) operating mode of greater than or equal to 1000 cd/m^2;

6) no video signal input interface and display drive allowing the correct display of a standardised dynamic video test sequence for power measurement purposes;

j) status displays;

k) control panels.

Legal Basis

ARTICLE 3 – (1) This Communique 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 Communique has been prepared based on Commission Regulation 2019/2013/EU, repealing the European Parliament and Council Regulation 1062/2010/EU on the Energy Labeling of Electronic Displays in the framework of alignment with the legislation of European Union.

Definitions

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

a) ‘EU’ means European Union;

b) ‘digital interactive whiteboard’ means an electronic display which allows direct user interaction with the displayed image. The digital interactive whiteboard is designed primarily to provide presentations, lessons or remote collaboration, including the transmission of audio and video signals. Its specification shall include all of the following features:

1) primarily designed to be installed hanging, mounted on a ground stand, set on a shelf or desktop or fixed to a physical structure for viewing by multiple people;

2) be necessarily used with computer software with specific functionalities to manage content and interaction;

3) integrated or designed to be specifically used with a computer for running the software in point (2);

4) user interaction by finger or pen touch or other means such as hand, arm gesture or voice;

c) ‘tuner/receiver’ means an electronic circuit that detects television broadcast signal, such as terrestrial digital or satellite, but not internet unicast, and facilitates the selection of a TV channel from a group of broadcast channels;

ç) ‘Ministry’ means Ministry of Industry and Technology;

d) ‘digital signage display’ means an electronic display that is designed primarily to be viewed by multiple people in non-desktop based and non-domestic environments. Its specifications shall include all of the following features:

1) unique identifier to enable addressing a specific display screen;

2) a function disabling unauthorised access to the display settings and displayed image;

3) network connection (encompassing a hard-wired or wireless interface) for controlling, monitoring or receiving the information to display from remote unicast or multicast but not broadcast sources;

4) designed to be installed hanging, mounted or fixed to a physical structure for viewing by multiple people and not placed on the market with a ground stand;

5) does not integrate a tuner to display broadcast signals;

e) ‘status display’ means a display used to show simple but changing information such as selected channel, time or power consumption. A simple light indicator is not considered a status display;

f) ‘electronic display’ means a display screen and associated electronics that, as its primary function, displays visual information from wired or wireless sources;

g) ‘screen area’ means the viewable area of the electronic display calculated by multiplying the maximum viewable image width by the maximum viewable image height along the surface of the panel (both flat or curved);

ğ) ‘security display’ means an electronic display whose specification shall include all of the following features:

1) self-monitoring function capable of communicating at least one of the following information to a remote server:

(a) power status;

(b) internal temperature from anti-overload thermal sensing;

(c) video source;

(ç) audio source and audio status (volume/mute);

(d) model and firmware version;

2) user-specified specialist form factor facilitating the installation of the display into professional housings or consoles;

h) ‘all-in-one video conference system’ means a dedicated system designed for video conferencing and collaboration, integrated within a single enclosure, whose specifications shall include all of the following features:

1) support for specific videoconference protocol ITU-T H.323 or IETF SIP as delivered by the manufacturer;

2) camera(s), display and processing capabilities for two-way real-time video including packet loss resilience;

3) loudspeaker and audio processing capabilities for two-way real-time hands-free audio including echo cancellation;

4) an encryption function and HiNA;

ı) ‘control panel’ means an electronic display whose main function is to display images associated with product operational status; it may provide user interaction by touch or other means to control the product operation. It may be integrated into products or specifically designed and marketed to be used exclusively with the product;

i) ‘monitor’ or ‘computer monitor’ or ‘computer display’ means an electronic display intended for one person for close viewing such as in a desk based environment;

j) ‘projector’ means an optical device for processing analogue or digital video image information, in any format, to modulate a light source and project the resulting image onto an external surface;

k) ‘virtual reality headset’ means a head-wearable device that provides immersive virtual reality for the wearer by displaying stereoscopic images for each eye with head motion tracking functions;

l) ‘point of sale’ means a location where electronic displays are displayed or offered for sale, hire or hire-purchase.

m) ‘digital photo frame’ means an electronic display that displays exclusively still visual information;

n) ‘grade 1 monitor’ means a monitor for high-level technical quality evaluation of images at key points in a production or broadcast workflow, such as image capture, post- production, transmission and storage;

o) ‘television’ means an electronic display designed primarily for the display and reception of audiovisual signals and which consists of an electronic display and one or more tuners/receivers;

ö) ‘medical display’ means an electronic display covered by the scope of: Medical Device Regulation published in the Official Gazette dated 07/06/2011 and numbered 27957, or Regulation of Active Medical Devices that can be Placed on the Body published in the Official

Gazette dated 07/06/2011 and numbered 27957, or Regulation on Medical Diagnostic Devices Used Outside the Body (In Vitro) published in the Official Gazette dated 09/01/2007 and numbered 26398;

p) 'integrated', referring to a display which is part of another product as a functional component, means electronic displays that are not able to be operated independently from the product and that depend on it for providing their functions, including power;

r) 'broadcast display' means an electronic display designed and marketed for professional use by broadcasters and video production houses for video content creation. Its specifications shall include all of the following features:

1) colour calibration function;

2) input signal analysis function for input signal monitoring and error detection, such as wave-form monitor/vector scope, RGB cut off, facility to check the video signal status at actual pixel resolution, interlace mode and screen marker;

3) Serial Digital Interface (SDI) or Video over internet Protocol (VoIP) integrated with the product;

4) not intended for use in public areas.

s) 'HiNA' means High Network Availability as defined in Article 4 paragraph (ıı) of Communique on Ecodesign Requirements for Standby and Off-Mode, and Networked Standby, Electric Power Consumption of Electrical and Electronic Household and Office Equipment (1275/2008/EC) (SGM:2021/13) dated …/…/… and numbered ….

Obligations of Suppliers

ARTICLE 6 – (1) Suppliers of electronic displays shall ensure that:

a) each electronic display is supplied with a label in printed form in the format and containing the information set out in Annex III;

b) the parameters of 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 , set out in Annex VI, is prepared;

d) any visual advertisement for a specific model of electronic display, including on the internet, contains the energy efficiency class and the range of efficiency classes available on the label in accordance with Annex VII and Annex VIII;

e) any technical promotional material concerning a specific model of electronic display, including on the internet, which describes its specific technical parameters, includes the energy efficiency class of that model and the range of 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, shall be made available to dealers for each electronic display model;.

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

ğ) in addition to point (a), the label shall be printed on the packaging or stuck on it.

(2) The energy efficiency class shall be based on the energy efficiency index calculated in accordance with Annex II.

Obligations of Dealers

ARTICLE 7 – (1) Dealers of electronic displays shall ensure that:

a) each electronic display, at the point of sale, including at trade fairs, bears the label provided by suppliers in accordance with point 1(a) of Article 6 displayed on the front of the appliance or hung on it or placed in such a way as to be clearly visible and unequivocally associated to the specific model; provided that the electronic display is kept in on-mode when visible to customers for sale, the electronic label in accordance with point 1(f) of Article 6 displayed on the screen may replace the printed label;

b) where an electronic display model is displayed in a point of sale without any unit displayed out of the box, the label printed on the box or stuck on it shall be visible;

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

ç) any visual advertisement for a specific model of electronic display, including on the internet, contains the energy efficiency class and the range of efficiency classes available on the label, in accordance with Annex VII;

d) any technical promotional material concerning a specific model of electronic display, 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 efficiency classes available on the label, in accordance with Annex VII.

Obligations of Service Provider on Internet Hosting Platforms

ARTICLE 8 – (1) Where a hosting service provider as referred to in Regulation on Service Providers and Intermediary Service Providers in Electronic Commerce published in Official Gazette No. 29457 dated 26/08/2015 allows the direct selling of electronic displays through its internet website, the 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 and shall inform the dealer of the obligation to display them.

Measurement Methods

ARTICLE 9 – (1) The information to be provided pursuant to Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement and calculation methods, which take into account the recognised state-of-the-art measurement and calculation methods set out in Annex IV.

Verification Procedure for Market Surveillance Purposes

ARTICLE 10 – (1) The Ministry shall apply the verification procedure laid down in Annex IX to this Communique when performing the market surveillance checks referred to in Article 10 of the Regulation on Setting a Framework for Energy Labeling (1369/2017/EU).

Consultation Forum Transactions

ARTICLE 11 – (1) In relation to this Communique, the Ministry shallparticipate , by the European Commission, consultation forum meetings, which are established to work on issues related to whether it is or is still appropriate to have separate energy categorisations for SDR and HDR; the verification tolerances set out in Annex IX; whether other electronic displays should be included in the scope; the appropriateness of the balance of stringency between larger and smaller products; whether it is feasible to develop appropriate notification methods for the energy consumption; and the possibility to address circular economy aspects.

Repeal

ARTICLE 12 – (1) The Communique on Energy Labeling of Televisions (SGM-2012/7) published in the Official Gazette dated 22/06/2012 and numbered 28331 was repealed.

Entry into Force

ARTICLE 13– (1) This Communique shall enter into force on 01/03/2021.

Enforcement

ARTICLE 14 – (1) The provisions of this Communique shall be enforced by the Minister of Industry and Technology.

ANNEX - I

DEFINITIONS FOR THE PURPOSES OF THE ANNEXES

1. The following definitions shall apply:

a) ‘network’ means a communication infrastructure with a topology of links and an architecture that includes the physical components, organisational principles and communication procedures and formats (protocols);

b) ‘network interface’ (or ‘network port’) means a wired or wireless physical interface, providing network connection, through which functions of the electronic display can be remotely activated and data received or sent. Interfaces to input data such as video and audio signals, but not originating from a network source and using a network address, are not considered to be a network interface;

c) ‘networked display’ means an electronic display that can connect to a network using one of its network interfaces, if enabled;

ç) ‘networked standby mode’ means a condition in which the electronic display is able to resume a function by way of a remotely initiated trigger from a network interface;

d) ‘network availability’ means the capability of an electronic display to activate functions after a remotely initiated trigger has been detected by a network interface;

e) ‘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;

f) ‘on mode’ or ‘active mode’ means a condition in which the electronic display is connected to a power source, has been activated and is providing one or more of its display functions;

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

ğ) ‘brightest on mode configuration’ means the configuration of the electronic display, pre-set by the supplier, which provides an acceptable picture with the highest measured luminance;

h) ‘energy efficiency index’ (EEI) means an index number for the relative energy efficiency of an electronic display, as set out in point B of Annex II;

ı) ‘display mechanism’ means any screen, including tactile screen or other visual technology used for displaying internet content to users;

i) ‘room presence sensor’ or ‘gesture detection sensor’ or ‘occupancy sensor’ means a sensor monitoring and reacting to movements in the space around the product whose signal can trigger the switching to on mode. Lack of movement detection for a predetermined time can be used to switch into standby mode or networked standby mode;

j) ‘External Power Supply (EPS)’ means a device as defined in the Communique 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)

k) ‘standby mode’ means a condition where the electronic display is connected to the mains or DC power source, depends on energy input from that source to work as intended and provides only the following functions, which may persist for an indefinite time:

1) reactivation function, or reactivation function and only an indication of enabled reactivation function; and/or

2) information or status display;

l) ‘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;

m) ‘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 product database or supplier’s own website;

n) ‘contrast ratio’ means the difference between the peak brightness and black level in an image;

o) ‘off mode’ means a condition in which the electronic display is connected to the mains power source and is not providing any function: the following shall also be considered as off mode:

1) conditions providing only an indication of off mode condition;

2) conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2014/30/EU of the European Parliament and of the Council

ö) ‘luminance’ means the photometric measure of the luminous intensity per unit area of light traveling in a given direction, expressed in units of candelas per square meter (cd/m^2). The term brightness is often used to ‘subjectively’ qualify the luminance of an electronic display;

p) ‘shop configuration’ means the configuration of the electronic display for use specifically in the context of demonstrating the electronic display, for example in high illumination (retail) conditions and not involving an auto power-off if no user action or presence is detected;

r) ‘normal configuration’ means a display setting which is recommended to the end-user by the supplier from the initial set up menu or the factory setting that the electronic display has for the intended product use. It must deliver the optimal quality for the end user in the intended environment and for the intended use. The normal configuration is the condition in which the values for off, standby, networked standby and on mode are measured;

s) ‘Automatic Brightness Control (ABC)’ means the automatic mechanism that, when enabled, controls the brightness of an electronic display as a function of the ambient light level illuminating the front of the display;

ş) ‘pixel (picture element)’ means the area of the smallest element of a picture that can be distinguished from its neighbouring elements;

t) ‘standardised EPS’ means an external power supply designed to provide power to various devices and that is complies with a standard issued by an international standardization organization;

u) ‘default’, referring to a specific feature or setting, means the value of a specific feature as set at the factory and available when the customer uses the product for the first time and after performing a ‘reset to factory settings’ action, if allowed by the product;

ü) ‘reactivation function’ means a function that via a remote switch, a remote control unit, an internal sensor, a timer or, for networked displays in networked standby mode, the network, provides a switch from standby mode or networked standby mode to a mode, other than off-mode, providing additional functions;

v) ‘High Dynamic Range (HDR)’ means a method to increase the contrast ratio of the image of an electronic display by using metadata generated during the creation of the video material and that the display management circuitry interprets to produce a contrast ratio and colour rendering perceived by the human eye as more realistic than that achieved by non HDR-compatible displays;

y) ‘forced menu’ means a specific menu, appearing upon initial start-up of the electronic display or upon a reset to factory settings, offering a set of display settings, pre-defined by the supplier.

ANNEX – II

A. ENERGY EFFICIENCY CLASSES

1. The energy efficiency class of an electronic display shall be determined on the basis of its energy efficiency index for labelling (EEI_{label}) as set out in Table 1.

2. The EEI_{label} of an electronic display shall be determined in accordance with part B of this Annex.

Table 1

Energy efficiency classes of electronic displays

Energy Efficiency Class	Energy Efficiency Index (EEI_{label})
A	$EEI_{label} < 0,30$
B	$0,30 \leq EEI_{label} < 0,40$
C	$0,40 \leq EEI_{label} < 0,50$
D	$0,50 \leq EEI_{label} < 0,60$
E	$0,60 \leq EEI_{label} < 0,75$
F	$0,75 \leq EEI_{label} < 0,90$
G	$0,90 \leq EEI_{label}$

B. ENERGY EFFICIENCY INDEX (EEI_{label})

1. The Energy Efficiency Index (EEI_{label}) of the electronic display shall be calculated using the following equation:

$$EEI_{label} = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0,025 + 0,0035 \times (A - 11)) + 4] + 3) + corr_l}$$

where;

-A represents the viewing surface area in dm^2;

-$P_{measured}$, is the measured power in on mode in Watts in the normal configuration and set as indicated in Table 2;

-$corr_l$, is a correction factor set as indicated in Table 3.

Table 2

Measurement of $P_{measured}$

Dynamic Range Level	$P_{measured}$
Standard Dynamic Range (SDR): $P_{measuredSDR}$	Power demand in Watts (W) in on mode, measured when displaying standardised test sequences of moving picture from dynamic broadcast content. Where allowances are

	applicable according to part C of this Annex, they should be deducted from $P_{measured}$.
High Dynamic Range (HDR): $Pmeasured_{HDR}$	Power demand in Watts (W) in on mode, measured as for $P_{measuredSDR}$ but with the HDR functionality activated by metadata in the standardised HDR test sequences. Where allowances are applicable according to part C of this Annex, they should be deducted from $P_{measured}$.

Table 3

Correction factor ($corr_l$) value

Electronic display type	**$corr_l$ value**
Television	0,0
Monitor	0,0
Digital signage	0,00062 x (lum - 500) x A -where 'lum' is the peak white luminance, in cd/m^2, of the brightest on mode configuration of the electronic display and A is the screen area in dm^2

C. ALLOWANCES AND ADJUSTMENTS FOR THE PURPOSE OF THE EEI_{label} CALCULATION

1. Electronic displays with automatic brightness control (ABC) shall qualify for a 10 % reduction in $P_{measured}$ if they meet all of the following requirements:

a) ABC is enabled in the normal configuration of the electronic display and persists in any other standard dynamic range configuration available to the end user;

b) the value of $P_{measured}$, in the normal configuration, is measured, with ABC disabled or if ABC cannot be disabled, in an ambient light condition of 100 lux measured at the ABC sensor;

c) if applicable, the value of $P_{measured}$ with ABC disabled shall be equal to or greater than the on mode power measured with ABC enabled in an ambient light condition of 100 lux measured at the ABC sensor;

ç) with ABC enabled, the measured value of the on mode power must decrease by 20 % or more when the ambient light condition, measured at the ABC sensor, is reduced from 100 lux to 12 lux;

d) the ABC control of the display screen luminance meets all of the following characteristics when the ambient light condition measured at the ABC sensor changes:

- the measured screen luminance at 60 lux is between 65 % and 95 % of the screen luminance measured at 100 lux;

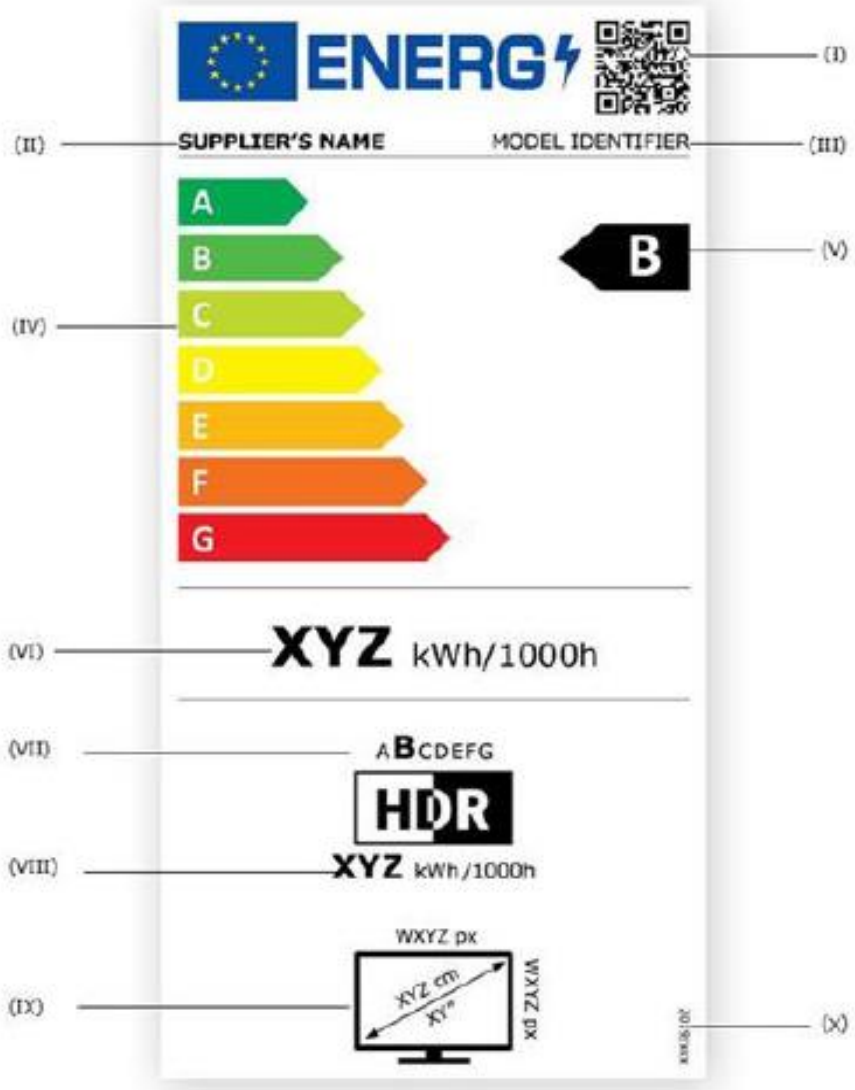
- the measured screen luminance at 35 lux is between 50 % and 80 % of the screen luminance measured at 100 lux;

- the measured screen luminance at 12 lux is between 35 % and 70 % of the screen luminance measured at 100 lux.

ANNEX – III

LABEL FOR ELECTRONIC DISPLAYS

1. LABEL



a) The following information shall be included in the label for electronic displays:

I. QR code;

II. supplier's name or trade mark;

III. supplier's model identifier;

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

V. the energy efficiency class determined in accordance with point B of Annex II when using $P_{measuredSDR}$.

VI. on mode energy consumption in kWh per 1 000 h, when playing SDR content, rounded to the nearest integer;

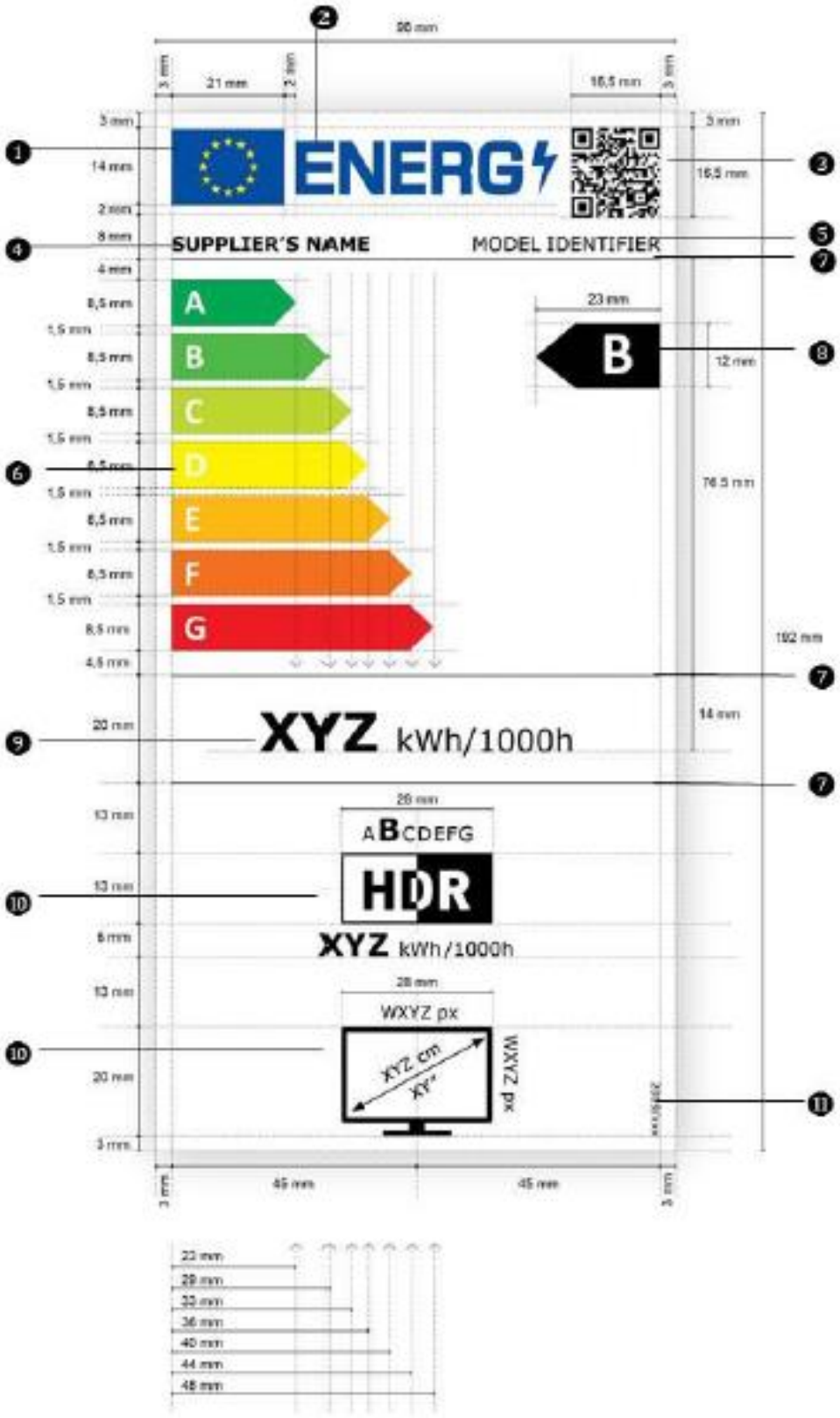
VII. the energy efficiency class determined in accordance with point B of Annex II when using $P_{measuredHDR}$,

VIII. the on mode energy consumption in kWh per 1 000 h, when playing HDR content, rounded to the nearest integer;

IX. visible screen diagonal in centimetres and inches and horizontal and vertical resolution in pixels;

X. the number of this Regulation, that is "2019/2013",

2. LABEL DESIGN



Whereby;

a) The label shall be at least 96 mm wide and 192 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above. For electronic displays with a size of the diagonal of the visible area less than 127 cm (50 inches), the label can be printed scaled down, but not less than 60 % of its normal size; its content shall nevertheless be proportionate to the specifications above and the QR code still readable by a commonly available QR reader, such as those integrated in a smartphone.

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

c) The typefaces shall be Verdana and Calibri.

ç) The dimensions and specifications of the elements constituting the label shall be as indicated in the label design.

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

e) The label shall fulfil all the following requirements (numbers refer to the figure above):

❶ the colours of the EU logo shall be as follows:
- the background: 100,80,0,0
- the stars: 0,0,100,0

❷ the colour of the energy logo shall be: 100,80,0,0;

❸ the QR code shall be 100 % black;

❹ the supplier's name shall be 100 % black and in Verdana Bold 9 pt;

❺ the model identifier shall be 100 % black and in Verdana Regular 9 pt;

❻ 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 the 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

❼ the internal dividers shall have a weight of 0,5 pt and the colour shall be 100 % black;

❽ the letter of the energy efficiency class shall be 100 % white and in Calibri Bold 33 pt. 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;

❾ the energy consumption value in SDR shall be in Verdana Bold 28 pt; 'kWh/1 000h' shall be in Verdana Regular 16 pt. The text shall be centred and in 100 % black;

❿ the HDR and the screen pictograms shall be 100 % black and as shown as in the label design; the texts (numbers and units) shall be 100 % black, and as follows:

- above the HDR pictogram, the letters of energy efficiency classes (A to G) shall be centred, with the letter of the applicable energy efficiency class in Verdana Bold 16 pt and the other letters in Verdana Regular 10 pt; under the HDR pictogram, the energy consumption value in HDR shall be centred, in Verdana Bold 16 pt with 'kWh/1 000h' in Verdana Regular 10 pt;
- the texts of the screen pictogram shall be in Verdana Regular 9 pt and placed as in the label design;

⓫ The number of the EU Regulation corresponding to this Communique shall be 100% black and in Verdana Regular 6 pt.

ANNEX- IV

MEASUREMENT METHODS AND CALCULATIONS

1. For the purposes of compliance and verification of compliance with the requirements of this Communique, measurements and calculations shall be made using harmonised standards, the reference numbers of which have been published in the Official Journal of the European Union or using other reliable, accurate and reproducible methods which take into account the generally recognised state-of-the-art. They shall be in line with the provisions set out in this Annex.

2. Measurements and calculations shall meet the technical definitions, conditions, equations and parameters set out in this Annex. Electronic displays which can operate in both 2D and 3D modes shall be tested when they operate in 2D mode.

3. An electronic display which is split into two or more physically separate units, but placed on the market in a single package, shall, for checking the conformity with the requirements of this Annex, be treated as a single electronic display. Where multiple electronic displays that can be placed on the market separately are combined in a single system, the individual electronic displays shall be treated as single displays.

A. Measurements of on mode power demand

1. Measurements of the on mode power demand shall fulfil all of the following general conditions:

a) electronic displays shall be measured in the normal configuration;

b) measurements shall be made at an ambient temperature of 23 °C +/- 5 °C;

c) measurements shall be made using a dynamic broadcast video signal test loops representing typical broadcast content for electronic displays in standard dynamic range (SDR). For the HDR measurement the electronic display must automatically and correctly respond to the HDR metadata in the test loop. The measurement shall be the average power consumed over 10 consecutive minutes;

ç) measurements shall be made after the electronic display has been in the off-mode or, if an off-mode is not available, in standby mode for a minimum of 1 hour immediately followed by a minimum of 1 hour in the on mode and shall be completed before a maximum of 3 hours in on-mode. The relevant video signal shall be displayed during the entire on mode duration. For electronic displays that are known to stabilise within 1 hour, these durations may be reduced if the resulting measurement can be shown to be within 2 % of the results that would otherwise be achieved using the durations described here;

d) where ABC is available, measurements shall be made with it switched off. If ABC cannot be switched off, then the measurements shall be performed in an ambient light condition of 100 lux measured at the ABC sensor.

B. Measurements of peak white luminence

1. Measurements of the peak white luminance shall be made:

a) with a luminance meter, detecting that portion of the screen exhibiting a full (100 %) white image, which is part of a ‘full screen test’ pattern not exceeding the average picture level (APL) point where any power limiting or other irregularity occurs;

b) without disturbing the luminance meter’s detection point on the electronic display whilst switching between the normal configuration and the brightest on mode configuration.

ANNEX – V

PRODUCT INFORMATION SHEET

1. The information part of the product information sheet of electronic displays pursuant to point 1(b) of Article 6 shall be provided from product database or the supplier's own website according to Table 4.

2. The user manual or other literature provided with the product shall clearly indicate the link to the model in the product database or supplier's own website" as a human-readable Uniform Resource Locator (URL) or as QR-code or by providing the product registration number.

Table 4

Information, order and format of the product information sheet

	Information	Value and precision	Unit	Notes
1	Supplier's name or trade mark	TEXT		
2	Supplier's model identifier	TEXT		
3	Energy efficiency class for standard Dynamic Range (SDR)	[A/B/C/D/E/F/G]		If the product database or supplier's own website automatically generates the definitive content of this cell, the supplier shall not enter this data.
4	On mode power demand for Standard Dynamic Range (SDR)	X,X	W	Rounded to the first decimal place for power values below 100 W, and rounded to the first integer for power values from 100 W.
5	Energy efficiency class (HDR)	[A/B/C/D/E/F/G] or n.a.		If the product database or supplier's own website automatically generates the definitive content of this cell, the supplier shall not enter this data. Value set to 'n.a.' (not applicable) if HDR not implemented.
6	On mode power demand in High Dynamic Range (HDR) mode	X,X	W	Rounded to the first decimal place for power values below 100 W, and rounded to the first integer for power values from 100 W (value set to 0 (zero) if 'not applicable').
7	Off mode, power demand	X,X	W	
8	Standby mode power demand	X,X	W	

9	Networked standby mode power demand		X,X			W	
10	Electronic display category		[television/monitor/signage/other]				Select one.
11	Size ratio		X	:	Y	integer	E.g. 16:9, 21:9 etc.
12	Screen resolution (pixels)		X	**x**	Y	Pixels	Horizontal and vertical pixels
13	Screen diagonal		X,X			cm	In cm according to the International System of Units (SI), rounded to the nearest decimal place.
14	Screen diagonal		X			inches	Optional, in inches rounded to the nearest integer place.
15	Visible screen area		X,X			cm^2	Rounded to the one decimal place
16	Panel technology used		TEXT				E.g. LCD/LED LCD/QLED LCD/OLED/MicroLED/ QDLED/SED/FED/EPD , etc.
17	Automatic Brightness Control (ABC) available		[YES/NO]				Must be activated as default (if YES).
18	Voice recognition sensor available		[YES/NO]				
19	Room presence sensor available		[YES/NO]				Must be activated as default (if YES).
20	Image refresh frequency rate		X			Hz	
21	Minimum guaranteed availability of software and firmware updates (until):		GG MM AAAA			date	As from Annex II E, point 1 of Communique on Ecodesign Requirements for Electronic Displays (2019/2021/EU) (SVGM:2021/…)
22	Minimum guaranteed availability of spare parts (until):		GG MM AAAA			date	As from Annex II D, point 5 of Communique on Ecodesign Requirements for Electronic Displays (2019/2021/EU) (SVGM:2021/…)
23	Minimum guaranteed product support (until):		GG MM AAAA			date	
24	Power supply type:		Internal/External/Standardised external				Select one.
i	External standardised	Standard name	TEXT				

	power supply (included in the product box)				
		Input voltage	X	V	
		Output voltage	X	V	
ii	External standardised suitable power supply (if not included in the product box)	Standard name	TEXT		Mandatory only if EPS not included in the box, non-mandatory otherwise.
		Required output voltage	X,X	V	Mandatory only if EPS not included in the box, non-mandatory otherwise.
		Required delivered current	X,X	A	Mandatory only if EPS not included in the box, non-mandatory otherwise.
		Required current frequency	X	Hz	Mandatory only if EPS not included in the box, non-mandatory otherwise.

ANNEX – VI

TECHNICAL DOCUMENTATION

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

1) identification data (general description of the model):
a) trademark and model identifier;
b) supplier's name, address, registered trade name;

2) references to the harmonised standards applied, other measurement standards and specifications used in measuring the technical parameters and calculations performed;

3) specific precautions to be taken when the model is assembled, installed and tested;

4) a list of all equivalent models, including model identifiers;

5) measured technical parameters of the model and calculations performed with the measured parameters as listed in Table 5;

Table 5
Measured technical parameters

		Value and precision	**Unit**	**Notes**
	General			
1	Ambient temperature	XX,XX	ºC	
2	Test voltage	X	V	
3	Frequency	X,X	Hz	
4	Total harmonic distortion (THD) of the electricity supply system	X	%	
	For On-mode			
5	Peak white luminance of the brightest on mode configuration	X	cd/m^2	
6	Peak white luminance of the normal configuration	X	cd/m^2	
7	Peak white luminance ratio (calculated)	X,X	%	Value row 6 above divided by value row 5 above times 100
	For APD			
8	Duration of the on mode condition, before the electronic display reaches automatically standby, or off mode, or another condition which does not exceed the applicable power consumption requirements	mm:ss		

	for off mode and/or standby mode.			
	For televisions: the measured value of the time before the television automatically reaches standby, or off-mode, or another condition which does not exceed the applicable power consumption requirements for off-mode and/or standby-mode following the last user interaction;	mm:ss		
	For televisions equipped with room presence sensor: the measured value of the time before the television automatically reaches standby, or off-mode, or another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode when no presence is detected;	mm:ss		
	Other electronic displays than televisions and broadcast displays: The measured value of the time before the electronic display automatically reaches standby, or off-mode, or another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode when no input is detected;	mm:ss		
	For ABC			If available and activated by default (as from Annex V, Table 4)
9	Average on mode power demand of the electronic display at an ambient light intensity, measured at the ABC sensor of the electronic display, of 100 lux and 12 lux.	X,X	W	

10	Percentage of power reduction due to ABC action between the 100 lux and 12 lux ambient light conditions.	X,X	%	
11	Display peak white luminance at each of the following ambient light intensities measured at the ABC sensor of the electronic display, 100 lux, 60 lux, 35 lux, 12 lux.	X	cd/m^2	
	Measured on mode power at 100 lux ambient light at the ABC sensor	X,X	W	
	Measured on mode power at 12 lux ambient light at the ABC sensor	X,X	W	
	The measured screen luminance at 60 lux ambient light at the ABC sensor	X	cd/m^2	
	The measured screen luminance at 35 lux ambient at the ABC sensor	X	cd/m^2	
	The measured screen luminance at 12 lux ambient light at the ABC sensor	X	cd/m^2	

6) Additional information requirements:

a) input terminal for the audio and video test signals used for testing;

b) information and documentation on the instrumentation, set-up and circuits used for electrical testing;

c) any other testing condition not described or determined in point (b);

ç) for on mode:

(1) the characteristics of the dynamic broadcast-content video signal representing typical broadcast TV content; for the HDR dynamic broadcast content video signal the electronic display must be automatically switched to HDR mode by the HDR metadata of that signal;

(2) the sequence of steps for achieving a stable condition with respect to power demand level; and

(3) the picture settings used for the brightest peak white luminance measurement and the test pattern for the video signal used for the measurement.

d) For standby and off mode:

(1) the measurement method used;

(2) description of how the mode was selected or programmed including any enhanced reactivation functions; and

(3) sequence of events to reach the condition where the electronic display automatically changes mode.

e) For electronic displays with a designated computer signal interface:

(1) confirmation that the electronic display prioritises the computer display power management protocols set out in point 6.2.3 of Annex II of Communique on Ecodesign Requirements for Computers and Computer Servers (617/2013/EU) (SGM:2021/14) published in the Official Gazette dated …/…/… and numbered ….. . Any deviation from the protocols should be reported;

f) For the networked electronic displays only:

(1) number and type of network interfaces and, except for wireless network interfaces, their position in the electronic display;

(2) whether the electronic display qualifies as electronic display with HiNA functionality; if no information is provided the electronic display is considered not to be HiNA display or display with HiNA functionality; and

(3) information whether networked electronic display provides functionality allowing the power management function and/or the end-user to switch the electronic display being in a condition providing networked standby into standby mode, or off mode or another condition which does not exceed the applicable power demand requirements for off mode and/or standby mode including enhanced reactivation function power allowance where applicable.

g) For each type of network port:

(1) the default time (mm:ss) after which the power management function, switches the display into a condition providing networked standby; and

(2) the trigger to be used to reactivate the electronic display.

7) Where the information included in the technical documentation file for a particular electronic display model has been obtained using either or both of the methods listed below, the technical documentation shall include, as appropriate, the details of such calculation, the assessment undertaken by suppliers to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different suppliers.

a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer or,

b) by calculation on the basis of design or by extrapolation from another model of the same or of a different supplier, or both.

8) the contact details of the person empowered to bind the supplier, if not included in the technical information uploaded into the product database or supplier’s own website, shall be made available, on request, to market surveillance authorities or to the Ministry for carrying out their tasks under this Communique.

ANNEX – VII

INFORMATION TO BE PROVIDED IN VISUAL ADVERTISEMENTS, IN TECHNICAL PROMOTIONAL MATERIAL IN DISTANCE SELLING AND IN TELEMARKETING, 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 efficiency 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 1, with:

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; and,

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 monochrome, the arrow can be in monochrome in that visual advertisement, technical promotional material or paper-based distance selling.

Figure 1: Coloured/monochrome 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, and that the customer can access the label and the product information sheet through the product database website or supplier’s own website, or by requesting a printed copy.

6. For all the situations mentioned in points 1 to 3 and 5, it must be possible for the customer to obtain, on request, a printed copy of the label and the product information sheet.

ANNEX – VIII

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

1. The appropriate label made available by suppliers in accordance with point 1(f) 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 label is clearly visible and legible and shall be proportionate to the size specified in point 2(a) of 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 a 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 2, 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:

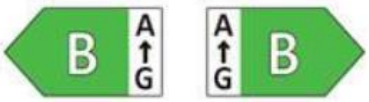


Figure 2: Coloured left/right arrow, with range of energy efficiency classes indicated

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; and

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

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 a 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.

ANNEX – IX

VERIFICATION PROCEDURE FOR MARKET SURVEILLANCE PURPOSES

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

2. Where a model has been designed to be able to detect it is being tested (e.g. by recognizing 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 Communique 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. When verifying the compliance of a product model with the requirements laid down in this Communique, the Ministry shall apply the following procedure:

a) The Ministry shall verify one single unit of the model.

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

(1) the values given in the technical documentation pursuant to Article 5(5) of Regulation on Setting a Framework for Energy Labelling (1369/2017/EU) published in the Official Gazette dated .../…/…and numbered …… (declared values), and, where applicable, the values used to calculate these values are not more favourable for the supplier than the corresponding values given in the test reports; 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 unit of the model, the determined values (the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances as given in Table 6.

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

ç) If the result referred to in point b(3) is not achieved, the Ministry shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be one or more equivalent models.

d) The model shall be considered to comply with the applicable requirements if for these three units, the arithmetical mean of the determined values complies with the respective tolerances given in Table 6.

e) If the result referred to in point (d) is not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

f) The Ministry shall provide all relevant information to the authorities of the Member States and to the Commission without delay after a decision being taken on the non-compliance of the model according to points (c) and (e).

4. The Ministry shall use the measurement and calculation methods set out in Annex IV.

5. The Ministry shall only apply the verification tolerances that are set out in Table 6 and shall only use the procedure described in subpoints of point 3 of this Annex for the requirements referred to in this Annex. No other tolerances, such as those set out in harmonised standards or in any other measurement method shall be applied.

Table 6
Verification Tolerances

Parameter	**Verification tolerances**
On mode power demand ($P_{measured}$, Watt)	The determined value * shall not exceed the declared value by more than 7 %.
Off mode, standby, and networked standby mode power demand in Watts, as applicable.	The determined value * shall not exceed the declared value by more than 0,10 Watt if the declared value is 1,00 Watt or less, or by more than 10 % if the declared value is more than 1,00 Watt.
Visible screen diagonal in centimetres (and inches if declared)	The determined value * shall not be lower than the declared value by more than 1 cm or 0,4 inches.
Visible screen area in dm^2	The determined value * shall not be lower than the declared value by more than 0,1 dm^2.
The screen resolution in horizontal and vertical pixels	The determined value * shall not deviate from the declared value.

* In the case of three additional units tested as prescribed in point 3(ç), the determined value means the arithmetic mean of the values determined for these three additional units.