



Brussels, **XXX**
[...](2018) **XXX** draft

COMMISSION DELEGATED REGULATION (EU) .../...

of **XXX**

**supplementing Regulation (EU) 2017/1369 of the European Parliament and
of the Council as regards energy labelling of electronic displays**

and repealing Commission Delegated Regulation (EU) No 1062/2010

(Text with EEA relevance)

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE DELEGATED ACT

1.1. Legal and political context of the proposal

In the EU, the Ecodesign Framework Directive¹ provides a framework that manufacturers of energy-related products are required to use to improve the environmental performance of their products. The framework sets out minimum energy efficiency requirements and other environmental criteria such as water consumption, emission levels or minimum durability of certain components that manufacturers have to fulfil before they can place their products on the market.

The Energy Labelling Framework Regulation² complements the Ecodesign Framework Directive by enabling end-consumers to identify the better-performing energy-related products, via an A-G/green-to-red scale³. The legislative framework builds upon the combined effect of these two pieces of legislation.

The ecodesign and energy labelling framework are central to making Europe more energy efficient, contributing in particular to the 'Energy Union Framework Strategy'⁴ and to the priority of a deeper and fairer internal market with a strengthened industrial base⁵. Firstly, this legislative framework pushes industry to improve the energy efficiency of products and removes the worst-performing ones from the market. Secondly, it helps consumers and companies to reduce their energy bills. In the industrial and services sectors, this results in support to competitiveness and innovation. Thirdly, it ensures that manufacturers and importers responsible for placing products on the European Union (EU) market only have to comply with a single EU-wide set of rules.

A number of third countries have established or are establishing policy frameworks similar to the European one and a number of energy efficiency labels are mandatory on energy-related products that generally resemble to the European energy efficiency label, such as the Republic of South Africa⁶, Hong Kong⁷, China, Macedonia⁸, Brasil⁹, Argentina¹⁰, Peru, Chile¹¹, Turkey, Iran, Arab Emirates, Ghana and others.

¹ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products. OJ L OJ L 285, 31.10.2009, p. 10 (Ecodesign Framework Directive).

² Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU. OJ L 198, 28.7.2017, p. 1 (Energy Labelling Framework Regulation)

³ Under the old Energy Labelling Framework Directive 2010/30/EU, energy labels were allowed to include A+ to A+++ classes, the new framework regulation requires a rescaling of existing energy labels, back to the original A to G scale (See also Section 1.3).

⁴ Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee, The Committee Of The Regions And The European Investment Bank - A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy. COM/2015/080 final. (Energy Union Framework Strategy)

⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Upgrading the Single Market: more opportunities for people and business COM/2015/550 final. 28 October 2015. (Deeper and fairer internal market)

⁶ <https://www.savingenergy.org.za/wp-content/uploads/2018/05/Energy-Label-Learner-Guide.pdf>

⁷ <https://www.clp.com.hk/en/my-home/energy-saving-ideas/understanding-energy-labels>

⁸ <https://www.procreditbank.com.mk/understanding-energy-efficiency-labels.nspx>

⁹ <http://www2.inmetro.gov.br/pbe/>

¹⁰ <https://www.argentina.gob.ar/televisor>

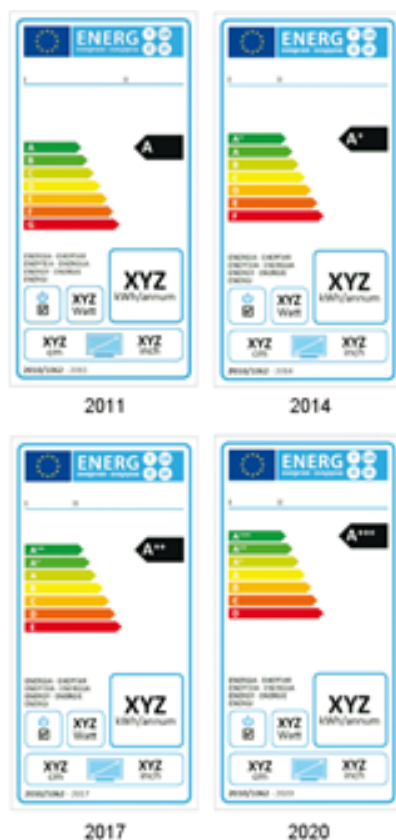


Figure 1: The four energy labels for televisions by the Regulation in force.

A study on the impact of the energy label – and potential changes to it – on consumer understanding and on purchase decisions¹² was completed in October 2014 and was the basis for the review of the energy Labelling Directive 2010/30/EU of the European Parliament and of the Council¹³. The study revealed that the energy label is recognised and used by 85 % of Europeans¹⁴ and represents the second best known symbol associated to the EU¹⁵, second to the Euro currency symbol. The majority of the EU consumers were able to correctly identify the product that was least costly to use indicating that they understand the meaning of the information in the label, such as kWh/annum. Similarly, consumers that understand the meaning of indications resulted more likely to correctly identify the product that is least costly 'for them' to run.

In August 2017, the new Energy Labelling framework Regulation (EU) 2017/1369 of the European Parliament and of the Council entered into force, repealing Directive 2010/30/EU¹⁶. Under the repealed Directive, energy labels were allowed to include A+ to A+++ classes to address the overpopulation of the top classes. Over time, due to technological development,

¹¹ <https://energiaen Chile.cl/conoce-la-nueva-etiqueta-energetica-para-televisores/>

¹² https://ec.europa.eu/info/sites/info/files/impact_of_energy_labels_on_consumer_behaviour_en.pdf

¹³ Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products, OJ L 153, 18.6.2010, p. 1

¹⁴ Study on the impact of the energy label – and potential changes to it – on consumer understanding and on purchase decisions - . LE London Economics and IPSOS, October 2014 (https://ec.europa.eu/info/sites/info/files/impact_of_energy_labels_on_consumer_behaviour_en.pdf)

¹⁵ Aster the Euro currency symbol.

¹⁶ Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products. OJ L 153, 18.6.2010, p. 1.

also the A+ to A+++ class became overpopulated, which significantly reduce the effectiveness of the labels. To resolve this, the new framework Regulation requires a rescaling of existing energy labels, back to the original A to G scale. Article 11 of the Energy Labelling framework Regulation lists five priority product groups for which new delegated acts with rescaled energy labels must be adopted at the latest on 2 November 2018. Televisions are one of the priority product groups.

Finally, several new policy initiatives indicate that ecodesign and energy labelling policies are relevant in a broader political context, and in particular in:

- the Energy Union Framework Strategy², which calls for a sustainable, low-carbon and climate-friendly economy,
- the Paris Agreement¹⁷, which calls for a renewed effort in carbon emission abatement,
- the Gothenburg Protocol¹⁸, which aims at controlling air pollution,
- the Circular Economy Initiative¹⁹, which among other things, stresses the need to include reparability, recyclability and durability in ecodesign,
- the Emissions Trading Scheme (ETS)²⁰, aim at reducing greenhouse gas (GHG) emissions in a cost-effective manner and indirectly affected by the energy consumption of the electricity using products in the scope of ecodesign and energy labelling policies, and
- the Energy Security Strategy²¹, which sets out a strategy to ensure a stable and abundant supply of energy.

Under the framework of Ecodesign and Energy Labelling, televisions and television monitors are regulated by Commission Regulation (EC) No 642/2009²² (Ecodesign) and Commission Delegated Regulation (EU) No 1062/2010 (Energy Label)²³. Article 7 of Regulation (EU) No 1062/2010 requires a review within 5 years (i.e. by December 2015).

Furthermore, the Commission's 2016-2019 Ecodesign Working Plan²⁴ also includes the review of both regulations, requiring in particular an examination of how aspects relevant to the circular economy can be assessed and taken on board. This is in line with the Circular Economy Initiative²⁵, which concluded that product design is a key in achieving the goals, as

¹⁷ Global agreement in response to climate change of 2015 (Paris Agreement)

¹⁸ Protocol to abate acidification, eutrophication and ground-level ozone of 1999 (Gothenburg Protocol)

¹⁹ [Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Closing the loop - An EU action plan for the circular economy](#) (Circular Economy Initiative)

²⁰ https://ec.europa.eu/clima/policies/ets_en (ETS)

²¹ Communication from the Commission to the European Parliament and the Council European Security Strategy. COM(2014)0330 final.

²² Commission Regulation (EC) No 642/2009 of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for televisions. OJ L 191, 23.7.2009, p. 42–52

²³ Commission Delegated Regulation (EU) No 1062/2010 of 28 September 2010 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of televisions. OJ L 314, 30.11.2010, p. 64–80

²⁴ Communication from the Commission Ecodesign Working Plan. COM(2016) 773 final, Brussels, 30 November 2016. (Ecodesign Working Plan 2016-2019)

²⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Closing The Loop - An EU Action Plan For The Circular Economy (Circular Economy Initiative)

it can have significant impacts across the product life cycle (e.g. in making a product more durable, easier to repair, reuse or recycle). Moreover, signage displays are specifically listed in the 2016-2019 Ecodesign Working Plan to be taken up in the revision of the existing regulations for televisions.

1.2. General context

The Ecodesign together with the Energy Labelling legislative framework²⁶ represent a push and pull market mechanism aiming at reducing carbon emissions (Figure 2) by determining a major impact on the choices that consumers make when purchasing energy consuming products.

The two policy frameworks are contributing to permit to products placed on the EU market to perform the same job using around one fifth less energy. By 2020, use of energy efficiency labels and ecodesign requirements is projected to lead to energy savings of around 165 Mtoe (million tonnes of oil equivalent) in the EU, roughly equivalent to the annual primary energy consumption of Italy. In relative terms, this represents a potential energy saving of approximately 9 % of the EU's total energy consumption and a potential 7 % reduction in carbon emissions. In 2030, savings are projected to grow to 15 % of the EU's total energy consumption and 11 % of its total carbon emissions.

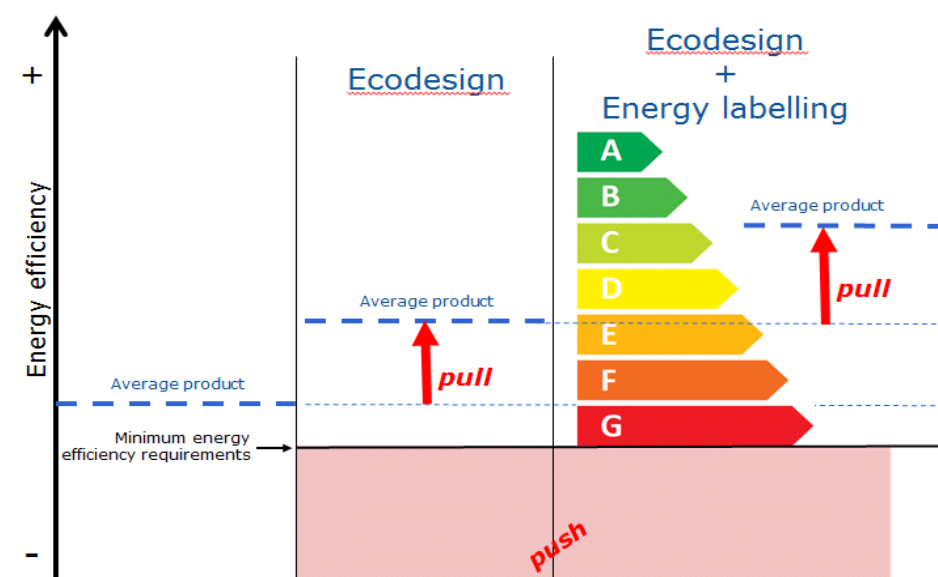


Figure 2: Effect of Ecodesign alone and when combined with Energy Labelling

The two policy frameworks also contribute to the reduction of the consumer expenditure, both by reducing the cost of the electricity bills²⁷ and the cost of products as manufacturer can reduce the variety of models to produce because of the single regulatory framework at EU level.

There have been relevant improvements in the energy efficiency of all electronic displays, mostly thanks to the television manufacturing sector. Computer monitors in particular are not going to represent a major share of energy consumption in the coming years. However, it is

²⁶ Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU. OJ L 198, 28.7.2017, p. 1 (Energy Labelling Framework Regulation).

²⁷ Nearly Euro 500 per year for the average EU household.

estimated that all electronic displays, mainly because they are becoming bigger and more numerous, will continue to account for a sizeable share of energy use, unless corrective action is taken. This is the case of signage displays in particular, which are generally of bigger size and have far higher luminance, as Figure 3 illustrates.

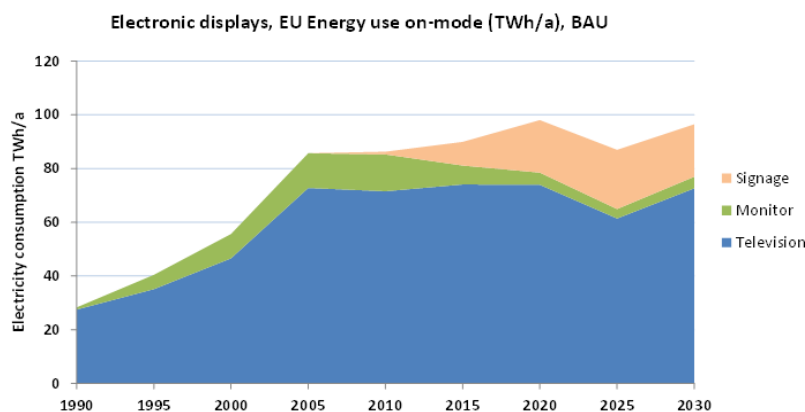


Figure 3: Yearly energy use in TWh, in on-mode of the three most relevant types of electronic displays, 1990-2030 in a business as usual (BAU) scenario (source VHK, 2018).

So far, of the different types of electronic displays, only TVs have been subject to mandatory energy labelling measures (under Regulation (EU) 1062/2010) and ecodesign requirements (laid down by Regulation (EC) 642/2009). Other displays are only covered by horizontal requirements (i.e. Standby Commission Regulation (EC) 1275/2008).

The regulations in force are based on a preparatory study and assessment that now dates back 10 years²⁸. As required by the review clause, in 2012, the Commission started reviewing the two television regulations with a study and presented its conclusions to stakeholders. The review showed already at that time that regulatory gaps and market failures existed, thus preventing full achievement of the identified energy savings potential. The collection of information was extended and data analysis repeated, highlighting the opportunity of corrective action. In total a database of over 3 thousand models of electronic displays placed on the EU market was analysed between 2012 and the end of 2017 in four different stages.

Market and regulatory failures have been highlighted since the beginning of the review and a number of new issues have emerged in the meantime that need to be corrected and that can be summarised as follows:

- insufficiently stringent minimum and ecodesign requirements and energy labelling applying to TVs due to unpredicted technological change and which led to overpopulating the top classes: already in 2017 over 85 % of televisions sold were in classes above "B";
- rapidly progressing functional convergence between different electronic displays, such as televisions, computer monitors, and signage displays, creating possible regulatory loopholes. TVs have been increasingly enabled for web browsing, for watching Internet streamed content or even for gaming and other displays and a variety of different displays are commonly used to watch content traditionally viewed only on TVs. Moreover the obsolete definition of "television monitor" in the

²⁸ The preparatory study for the regulations in force was performed in 2006-2007, during an unprecedented technology and market revolution and is available from <https://circabc.europa.eu/w/browse/5263110f-17fc-465b-b1b9-b64552035b03>

Regulation in force may be interpreted as covering many of the computer monitors now on the market²⁹;

- lack of requirements for new energy-intensive features, such as high dynamic range (HDR), that first appeared in premium models in 2016 and is progressively available in more affordable models (although the availability of HDR-enabled content is still extremely limited). HDR, when poorly implemented, can more than double the energy consumption of the electronic display;
- lack of requirements for resource efficiency aspects.

The aim of the proposed Regulation on energy labelling is to provide a renewed incentive to manufacturers to improve the energy efficiency of electronic displays, reboosting the market take-up of energy-efficient products mainly by:

- extending its scope to the most common electronic displays;
- rescaling the energy label, now ranging from A+++ to D (Figure 1), to the original A to G scale;
- providing customers with indications in the label that better correspond to real-life use and enable them to make a better informed purchase choice, and better compare products that are comparable.

1.3. Existing provisions in the area of the proposal

The following measures, currently in force, address the environmental performance of electronic displays:

- Directive 2010/30/EU³⁰ on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products;
- Directive 2009/125/EC³¹ establishing a framework for the setting of ecodesign requirements for energy-related products ;
- Regulation (EU) No 1062/2010³² with regard to energy labelling of televisions;
- Regulation (EC) No 642/2009³³ with regard to ecodesign requirements for televisions.

Moreover, Commission Decision 2009/300/EC establishing the revised ecological criteria for the award of the Community Eco-label covers televisions with some stricter energy efficiency requirements and addresses other environmental issues³⁴.

Furthermore, standby Regulation 1275/2008 covers the displays not covered by the Television Regulation. Finally, monitors and signage displays were included in the now elapsed EU-US Energy Star Agreement (in Annex C). As a result, monitors and signage displays are today no longer covered by any labelling programme, even on voluntary basis, and no labelling instrument exist to cover these products as public procurement criteria.

²⁹ Definitions are based on obsolete interface definitions and cause legal uncertainty.

³⁰ OJ L 153, 19.05.2010, p. 1

³¹ OJ L 285, 31.10.2009, p. 10

³² OJ L 314, 30.11.2010, p. 64

³³ OJ L 191, 23.07.2009, p. 42

³⁴ About a hundred television models have been certified with an Ecolabel since its establishment 9 years ago. Requirements include e.g. absence of the most toxic flame retardant (FR) additives, design facilitating repair and dismantling at end of life.

1.4. Consistency with other EU policies and objectives

Promoting market take-up of efficient electronic displays contributes to 2020 and 2030 energy efficiency and greenhouse gas emission reductions objectives³⁵. It aims to support more efficient and sustainable use of resources, protect the environment, strengthen the EU's leadership in developing new green technologies, improve the business environment and help consumers make more informed choices.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

2.1. Consultation of interested parties

EU and international stakeholders and Member States' experts have participated in the process from the beginning.

The proposal for energy labelling was discussed together with potential ecodesign requirements in four different Consultation Forums (CF) with Member State experts, representatives of manufacturers, environmental non-governmental organisations ('NGOs') and consumer organisations. A number of representatives of other organisations also took part in the discussions, such as European organisations representing the recycling industry, repairers, waste management and environmental services (municipalities and the private sector).

All relevant working documents were sent to the Member States, the European Parliament and stakeholders and were published in the Commission's CIRCA website 30 days before the CF meetings. Following the CF meetings stakeholders were given an additional 30 days for submitting written comments (available on the CIRCA³⁶ website).

Furthermore, specific aspects of individual requirements were discussed between Commission staff and various stakeholders at several bilateral and multilateral meetings between 2013 and March 2018. The process was conducted in an open process, taking into account input from all relevant stakeholders and independent technical experts.

In principle, the proposed energy labelling scheme for electronic displays has been supported by Member States and stakeholders.

Regarding the product scope, following the CF in 2012 and the discussion held in a previous CF in 2009³⁷, an overwhelming majority of Member States and NGOs agreed on a proposed extension of the labelling scheme to electronic displays other than televisions. Manufacturers, however, requested exceptions or different requirements for specialised displays, such as public displays, professional monitors for graphic applications and broadcast monitors.

The proposed energy labelling measure incorporates the comments expressed by Member States and stakeholders at and after the three CF meetings.

During the preparatory process, additional additional evidence and data has been collected for the Impact Assessment of 2013³⁸ and its update in 2015 (see further). Market and technical

³⁵ I.e. 20% energy savings by 2020 and 32.5% by 2030.

³⁶ <https://circabc.europa.eu/w/browse/d46d97b6-b78b-45ce-b0be-56864222a689>

³⁷ ENER Lot 3, Computers and computer displays, resulting in the Computers ecodesign Regulation 617/2013.

³⁸ This first impact assessment was approved by the Impact Assessment Board on 4 September 2013.

data were acquired through several bilateral and multilateral meetings with stakeholders or via publicly available data³⁹.

Furthermore, the Commission established a dataset of information about the environmental performance of electronic displays (mainly, televisions and computer monitors), updated four times to reflect the market, to support the development of the proposed ecodesign and energy labelling measures. This helps to ensure that the requirements are laid down at the proper ambition level and that they reflect recent technology developments.

An online public consultation⁴⁰ took place from 12 February to 7 May 2018, to collect stakeholders' views on issues such as the expected effect of potential legislative measures on business and energy consumption trends.

The public consultation contained a common part on Ecodesign and Energy labelling, followed by product-specific questions on (i) refrigerators, (ii) dishwashers, (iii) washing machines, (iii) televisions, (iv) electronic displays and (v) lighting.

1 230 responses were received of which 67 % were consumers and 19 % businesses (of which three quarters were SMEs and one-quarter large companies). NGOs made up 6 % of respondents, and 7 % were "other" categories. National or local governments were under 1 % of respondents, and 0,25 % came from national market surveillance authorities (MSAs).

It should be noted that of the 1 230 respondents, 719 (58 %) replied only to lighting related questions as part of a coordinated campaign on lighting in theatres.

Some 63 % of the participants were in favour of including Ecodesign requirements on reparability and durability, and 65 % of respondents considered that this information should be on energy labels.

On the reparability of products, participants valued mostly as "very important" to "important" (in the range 62 %-68 %)⁴¹ each of the following: a warranty, the availability of spare parts, and a complete manual for repair and maintenance. The delivery time of spare parts was rated as 56 % "very important" to "important".

For electronic displays, the public consultation was mainly focused on options for a redesigned energy label. The majority of respondents considered that the label should show at least the display screen area, its resolution level, the use of high dynamic range (HDR) and the annual power consumption.

2.2. Impact assessment

An impact assessment (IA) of the possible policy measures was carried out pursuant to Article 15(4)(b) of Directive 2009/125/EC. A previous impact assessment was prepared in 2013 (approved by the Impact Assessment Board (IAB) on 4 September 2013 and a full update was completed in 2015. The impact assessment accompanying the current proposal is an extensive review of the previous one, using updated evidence additional stock market data and taking into consideration the comments received before, during and after the four mentioned Consultation Forums, the position letters addressed to the Commission over the

³⁹ The Regulation in force includes information on availability requirements that was particularly useful for collecting verifiable, non-anonymised and official data. The Energy Star database was and additional source of relevant information, particularly for monitors and signage displays.

⁴⁰ https://ec.europa.eu/info/consultations/public-consultation-ecodesign-and-energy-labelling-refrigerators-dishwashers-washing-machines-televisions-computers-and-lamps_en

⁴¹ Scale ranging from not important, somewhat important, important, very important, don't know or no opinion and no answer

last 6 years from the beginning of the review process and the online public consultation. The Regulatory Scrutiny Board required a review of a first draft of the Impact Assessment submitted, improving clearness in respect to the problem definition and better integration of circular economy aspects. A second edition, with improved coverage of circular economy aspects and better description of the consultation process was given a positive opinion.

Different policy options for achieving a market transformation fulfilling the appropriate level of ambition were considered, including: no new EU action ('business-as-usual' of BAU; termination of the existing television regulations, a self-regulation measure concluded by industry, all discarded, and revision of the existing television regulations (articulated into three options, indicated as 'ECO', 'Ambi' and 'Leni').

The impacts of a policy option comprising an introduction of a new energy label for televisions and other electronic displays (together with new ecodesign requirements) were assessed against the 'business-as-usual' scenario. Three different proposals for revised energy labelling (and ecodesign) measures were analysed. The ECO proposal corresponds to the working documents presented to the CF of July 2017 and based on the proposals presented during the two previous discussions of 2014 and of 2012. The Ambi option partially⁴² incorporates the strong and renewed request by various Member States and NGOs to extend the scope to signage displays, while the Leni fully responds to the manufacturers request for more lenient requirements for new features and technologies, such as UHD/HDR and OLED.

Based on an assessment of costs and benefits, a combination of energy labelling and ecodesign requirements for electronic displays emerged as a preferred option to address regulatory and market failures in the electronic displays sector.

Consequently, the option of introducing a labelling scheme for energy efficiency of the three main display product categories was chosen, together with ecodesign requirements, as it delivers the highest savings.

An internal Consultation process followed, with a number of suggestions and detailed improvements incorporated in the draft legislative proposal and in accompanying documents.

3. LEGAL ELEMENTS OF THE DELEGATED ACT

The proposed measure applies to electronic displays irrespective of the display technology. Displays not in the scope of the Ecodesign Regulation for on-mode requirements are completely out of scope of energy labelling, apart from signage displays, where a correction factor is used to take into account the higher luminosity characterising this product group in relation to televisions or computer monitors⁴³.

Displays integrated into other products, such as computers, refrigerators, vending machines, etc. are completely out of the scope of both the Ecodesign and Labelling Regulations, as are displays in means of transport, and medical displays.

The proposed measure uses the same "formula" of eco-design to calculate the Energy Efficiency Index (EEI) in order to have a correct correspondence between the lowest limit of the "G" class and the maximum energy use allowed in the Ecodesign Regulation to access the

⁴² No on-mode minimal energy efficiency requirements are being proposed so far in Ecodesign but Energy Labelling is proposed. The Ecodesign proposal includes a review clause for setting on-mode minimal requirements on signage displays and possibly further extend the scope to modular systems.

⁴³ New, 'self-reflective' technologies known as 'electronic ink' are in any case emerging for indoor and outdoor signage display products. These technologies have outstanding efficiency in applications with moderate image change rate, as no backlight is necessary. Energy is almost only used to change the picture, and a small PV panel and/or a battery can provide the necessary power.

EU market. The requirements will be introduced in three tiers, with Tier 2 (by 2022) of ecodesign involving the elimination of the ‘G’ class and Tier 3 (by 2024) the elimination of the ‘F’ class.

Table 1: ECO energy efficiency classes

Energy efficiency class	New EEI
A	$EEI \leq 0.30$
B	$0.30 < EEI \leq 0.40$
C	$0.40 < EEI \leq 0.50$
D	$0.50 < EEI \leq 0.60$
E	$0.60 < EEI \leq 0.75$
F	$0.75 < EEI \leq 0.90$
G	$0.90 < EEI$

A comparison between the current energy classes and the new ones can be only approximated, as the formula to set the limits is different: a linear bar in the current Regulation, a curve in the new proposal. **Figure 4** provides such an illustration, for comparison of relatively small displays.

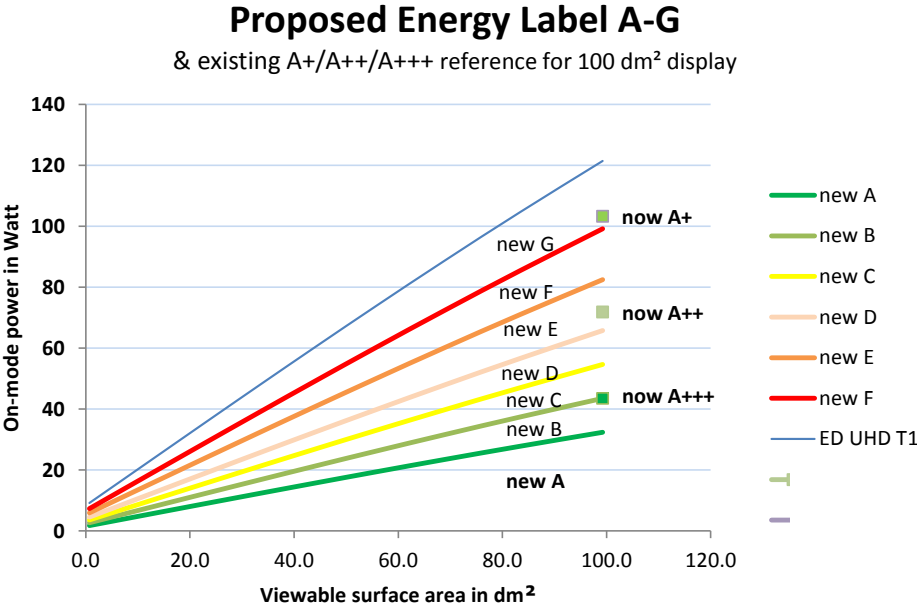


Figure 4: Approximate comparison between new and old energy labelling classes.

Figure 5 provides a visual distribution of the electronic displays which are part of the 2014-2017 dataset used in the hypothesis that the same displays would be on the market when rescaling the televisions and setting labelling requirements for the other monitors would not be within the scope of the current Regulation. All displays above the red curve would be eliminated by the minimum ecodesign requirements. However, it is unlikely that models on the market in 2014 will still be available on the market in 2021.

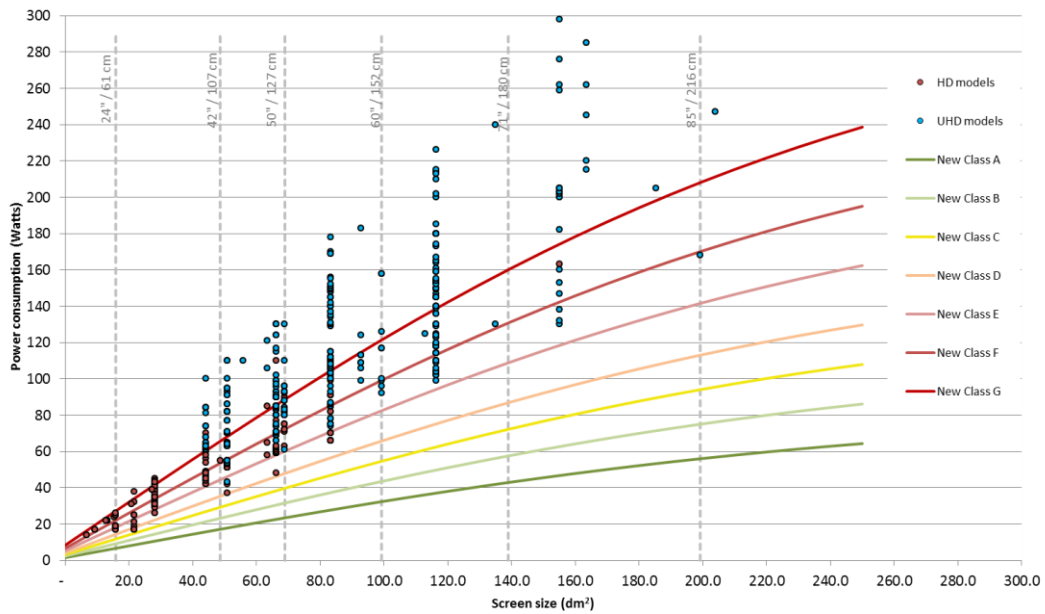


Figure 5: Distribution of displays from the 2018 dataset ‘unadjusted’ to the new labelling classes.

Figure 6 includes an adjustment of the energy efficiency to the same dataset on the basis of average improvements observed when comparing the datasets over the years (from 2012 to 2017).

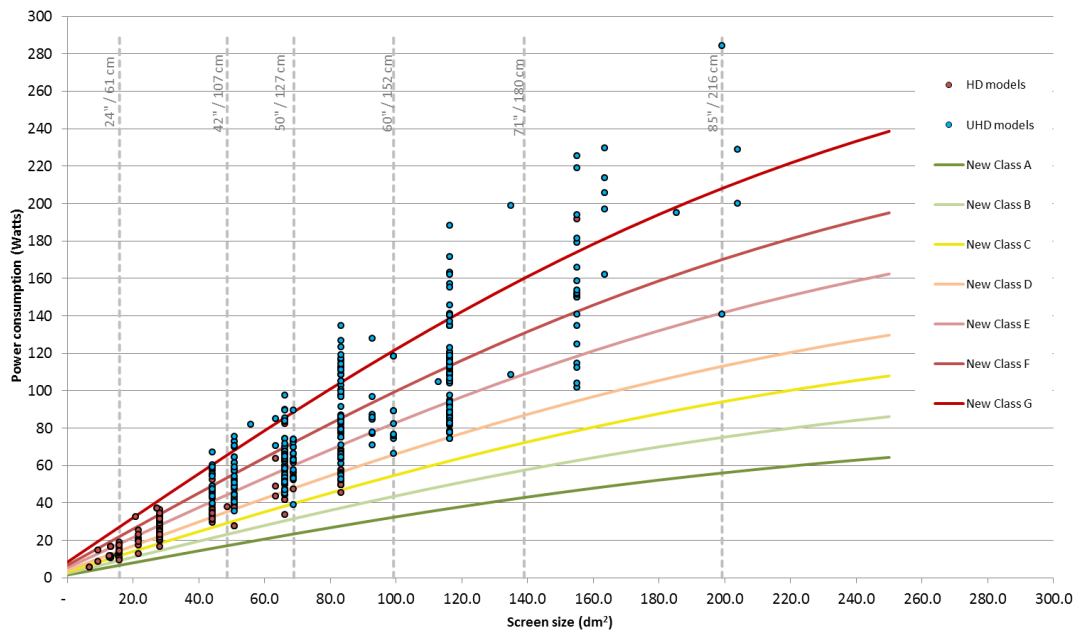


Figure 6: Distribution of displays from the 2018 dataset with projection of expected improvements at entry in force of the rescaled labels.

Figure 7 projects the same dataset with the same assumptions showing the hypothetical distribution by 2025 and by 2030. If Ecodesign Tier 2 and Tier 3 are applied, models in class G will be eliminated by 2022 and models in class F by 2024.

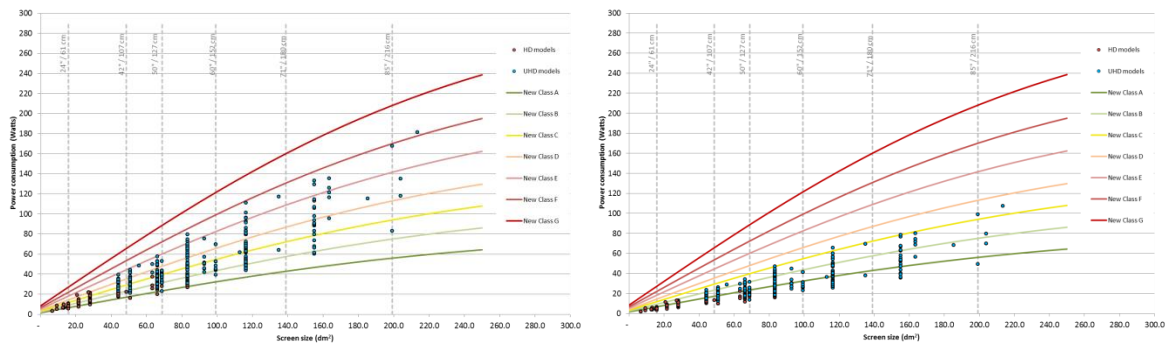


Figure 7: Distribution of displays from the 2018 dataset with projection of expected improvements by 2025 (left) and 2030 (right).

Figure 8 illustrates the expected trend in energy labelling under the ECO scenario. Under the Lenient scenario, the lower classes would include more products (as more products are allowed on the market under Ecodesign). In the Ambitious scenario, where signage displays fall within the scope, it is also expected that the lower energy label classes will be more populated. ‘Edx’ indicates the three different tiers proposed in ecodesign.

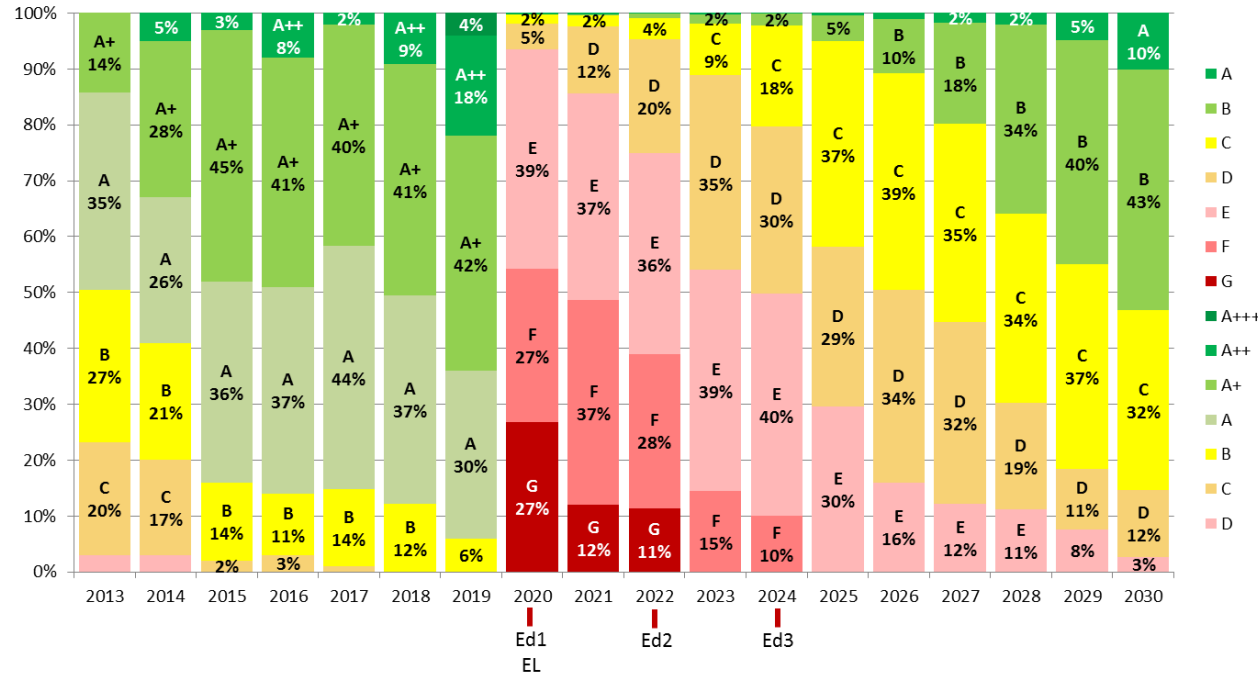


Figure 8: Energy label class distribution of standard electronic display models available in the EU over the period 2010-2030 (actual situation in 2013-2016 and projected situation for 2017-2030) with proposed ecodesign and energy labelling measures.

There are considerable uncertainties in future projections for this product group because new technologies may result in ‘tipping points’ improving energy efficiency⁴⁴ and new features eroding some savings.

Finally, no direct relation has been demonstrated between retail prices and the level of energy efficiency in electronic displays, as a number of factors, other than energy use, are decisive in determining the product cost, such as display size, adoption of new technologies, available features particularly in terms of ‘smartness’, etc.

⁴⁴ Such as self-reflective, self-emissive or transfective technologies, now at the demonstrative stage.

The new label would include two energy classes, one for the traditional way of playing images⁴⁵ and a separate one for HDR, shown separately in the label. The reason is that because of the novelty of HDR and the scarce data available, no minimum energy efficiency index has been set in the Ecodesign Regulation and no weighted mix of the standard dynamic range (SDR) and HDR would be acceptable⁴⁶.

Displays of the same size and resolution level should be compared. Therefore, the label would contain the basic information to compare comparable displays. Finally, the label would indicate whether the display is powered via an external and standardised power supply⁴⁷ and a pictogram variant would indicate if the power supply is present in the packaging or not. The diffusion of standardised external power supplies (EPS, also improperly called "chargers"), converting AC 230 Volt current into low voltage DC current has a multi-fold relevance in terms of reparability, durability, health and recyclability, i.e.:

- repairs are more convenient: A broken EPS can be replaced by any user at moderate/low cost while an internal one would require a technician and often is not cost-effective⁴⁸;
- there is an unbundling of products with different lifespans⁴⁹;
- fewer or no flame retardants are needed: removing the power source from the interior of an electronic display reduces or possibly nullifies the need to use flame retardants in plastics⁵⁰.

4. LEGAL BASIS, SUBSIDIARITY AND PROPORTIONALITY

4.1. Legal basis

The proposed Regulation is an delegated measure adopted pursuant to Regulation (EU) 2017/1369, in particular Articles 11 and 16 thereof. Regulation (EU) 2017/1369, in turn, is based on Articles 194(2) of the Treaty.

4.2. Subsidiarity principle

The adoption of energy labelling measures for electronic displays by individual Member States, through their national legislation, would create obstacles to the free movement of goods within the EU. It is necessary for such measures in force throughout the EU to have the same content. In line with the principle of subsidiarity, it is thus appropriate for the measures in question to be adopted at EU level.

⁴⁵ Indicated as Standard Dynamic Range or SDR in the working document)

⁴⁶ How long a display is used in SDR or HDR will change in the coming years but not at the same rate and proportion (e.g. a monitor used for office use would make no use at all of HDR, a TV typically relying on broadcast or streamed content. Broadcasters will probably be slow to move on, as almost no programme is in 4k while even displays of 8k will soon be available. We can expect, on the contrary, that signage displays showing advertisements and needing to capture people's attention will largely make use of HDR, but, again, not all signage is used for commercial adverts.

⁴⁷ Such as e.g. USB with PD (Power Delivery) and 'Type-C' connector that can power a 100 W display such such as a television of over 60-inches.

⁴⁸ E.g. because integrated on the main electronic board and with a cost comparable to a new display.

⁴⁹ A standard EPS can have its own lifespan, unbundled from different products that it can power, in the same way that a 'USB charger' (that is an EPS) can be used for different smartphones and vice versa.

⁵⁰ Flame retardants hinder recyclability and halogenated substances in particular are highly toxic and ecotoxic during the display's entire lifetime. Pilot projects have demonstrated the possibility of avoiding use of flame retardants by removing the power supply from inside the TV (e.g. <https://corporate.bestbuy.com/fewer-chemicals-same-fire-safety-for-insignia-tvs/>)

4.3. Proportionality principle

In accordance with the principle of proportionality, this measure does not go beyond what is necessary in order to achieve the objective, which is to set harmonised energy labelling requirements for electronic displays. It repeals and replaces an existing Regulation. It sets requirements that act as an incentive for technology leaders to invest in high-efficiency electronic displays.

5. CHOICE OF INSTRUMENT

Proposed instrument: Delegated Regulation.

Other means would not be appropriate for the following reason(s):

The form of the implementing measure is a regulation, which is directly applicable in all Member States. This has been chosen because the objectives of the action can be achieved most efficiently by introducing fully harmonised requirements throughout the EU. Furthermore, it repeals and replaces an existing Commission regulation. Moreover, it ensures that national and EU administrations will not incur costs transposing the implementing legislation into national legislation.

6. BUDGETARY IMPLICATION

The proposal has no implications for the EU budget.

7. ADDITIONAL INFORMATION

Review/revision/sunset clause

The proposal includes a review clause.

European Economic Area

The proposed Regulation concerns an EEA matter and should therefore extend to the European Economic Area.

COMMISSION DELEGATED REGULATION (EU) .../...

of XXX

**supplementing Regulation (EU) 2017/1369 of the European Parliament and
of the Council as regards energy labelling of electronic displays**

and repealing Commission Delegated Regulation (EU) No 1062/2010

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Regulation (EU) 2017/1369 of the European Parliament and of the Council of 28 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU⁵¹, and in particular Article 11(5) and Article 16 thereof,

Whereas:

- (1) Regulation (EU) 2017/1369 of the European Parliament and of the Council empowers the Commission to adopt delegated acts as regards the labelling or re-scaling of the labelling of product groups representing significant potential for energy savings and, where relevant, other resources.
- (2) Provisions on the energy labelling of televisions were established by Commission Delegated Regulation (EU) No 1062/2010⁵².
- (3) The Ecodesign Working Plan 2016-2019 established by the Commission in application of Article 16(1) of Directive 2009/125/EC sets out the working priorities under the ecodesign and energy labelling framework for the period 2016-2019. The Working Plan identifies the energy-related product groups to be considered as priorities for the undertaking of preparatory studies and eventual adoption of implementing measures, as well as the review of the current regulations.
- (4) Measures from the Working Plan have an estimated potential to deliver a total in excess of 260 TWh of annual final energy savings in 2030, which is equivalent to reducing greenhouse gas emissions by approximately 100 million tonnes per year in 2030. Electronic displays are one of the product groups listed in the Working Plan, with an estimated 39 TWh of annual final energy savings in 2030.
- (5) Televisions are among the product groups mentioned in Article 11(5)(b) of Regulation (EU) 2017/1369 for which the Commission should adopt a delegated act introducing an A to G rescaled label.

⁵¹ OJ L 198, 28.07.2017, p. 1.

⁵² Commission Delegated Regulation (EU) No 1062/2010 of 28 September 2010 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of televisions (OJ L 314, 30.11.2010, p. 64).

- (6) Regulation (EU) No 1062/2010 required the Commission to review the regulation in light of technological progress.
- (7) The Commission has reviewed Regulation (EU) No 1062/2010 pursuant to Article 7 of that Regulation and analysed technical, environmental and economic aspects of televisions and other electronic displays, including monitors and signage displays as well as real-life user understanding and behaviour of different labelling elements. The review was carried out in close cooperation with stakeholders and interested parties from the Union and third countries. The results of the review were made public and presented to the Consultation Forum referred to in Article 14 of Regulation (EU) 2017/1369.
- (8) It appears from the review that the same requirements for televisions should also apply to monitors because of the rapidly increasing functionality overlap between such displays and televisions, whilst for signage displays specific energy requirements should be set. Moreover, signage displays are specifically listed in the Commission's 2016-2019 Ecodesign Working Plan to be taken up in the revision of the existing regulations for televisions. The scope of this Regulation should thus comprise electronic displays including televisions, monitors and signage displays.
- (9) The annual energy consumption in 2016 of televisions in the Union constituted more than 3 % of the Union's electricity consumption. The projected energy consumption of televisions, monitors and signage displays in a business as usual scenario is expected to be close to 100 TWh/yr in 2030. This Regulation, together with the accompanying ecodesign regulation, is estimated to reduce the overall consumption up to 39 TWh/yr by 2030.
- (10) The high dynamic range (HDR) encoding function may lead to a different energy use, suggesting a separate energy efficiency indication for such a function.
- (11) The material efficiency aspect of electronic displays identified as significant for the purposes of this Regulation is the encouragement of unbundling of standardised external power supplies.
- (12) The information provided on the label for the electronic displays in the scope of this Regulation should be obtained through reliable, accurate and repeatable measurement procedures, which take into account the recognised state of the art measurement methods including, where available, harmonised standards adopted by the European standardisation organisations, as listed in Annex I to Regulation (EU) No 1025/2012 of the European Parliament and of the Council⁵³.
- (13) Recognising the growth of sales of energy-related product through web-stores and internet sales platforms, rather than directly from suppliers, it should be clarified that service providers of web-stores and internet sales platforms should be responsible for displaying the label provided by the supplier in proximity to the price, as from Commission Delegated Regulation (EU) No 518/2014⁵⁴.

⁵³ Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council (OJ L 316, 14.11.2012, p. 12).

⁵⁴ Commission Delegated Regulation (EU) No 518/2014 of 5 March 2014 amending Commission Delegated Regulations (EU) No 1059/2010, (EU) No 1060/2010, (EU) No 1061/2010, (EU) No 1062/2010, (EU) No 626/2011, (EU) No 392/2012, (EU) No 874/2012, (EU) No 665/2013, (EU) No

- (14) To improve the effectiveness of this Regulation, products that automatically alter their performance in test conditions to improve the declared parameters should be prohibited.
- (15) The measures provided for in this Regulation were discussed by the Consultation Forum referred to in Article 14 of Regulation (EU) 2017/1369.
- (16) Regulation (EU) No 1062/2010 should be repealed,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

- 1. This Regulation establishes requirements for the labelling of, and the provision of supplementary product information on electronic displays that are primarily intended for household, office or commercial use, including televisions, monitors and signage displays.
- 2. This Regulation shall not apply to the following:
 - (a) any electronic display with a surface area smaller than or equal to 100 square centimetres;
 - (b) digital photo frames;
 - (c) projectors;
 - (d) all-in-one video conference systems;
 - (e) medical displays;
 - (f) electronic displays where the main function of the display is status display or control or function activation;
 - (g) electronic displays integrated or to be integrated exclusively into products whose main function is not displaying images;
 - (h) broadcast displays;
 - (i) professional displays;
 - (j) security displays;
 - (k) digital interactive whiteboards;
 - (l) 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 stand – alone display device;
 - (2) distributed self-contained in an enclosure for permanent outdoor use;
 - (3) distributed self-contained in an enclosure with a visible display screen area less than 30dm² and greater than 130 dm²;
 - (4) the display has a pixel density less than 230 pixels/cm² and more than 3025 pixels/cm²;

811/2013 and (EU) No 812/2013 with regard to labelling of energy-related products on the internet. OJ L 147, 17.5.2014, p. 1

- (5) a peak white luminance in standard dynamic range (SDR) operating mode of greater than or equal to 1000 cd/m²;
- (6) no video signal input interface and display drive allowing the correct display of a standardised dynamic video test sequence for power measurement purposes.

Article 2 Definitions

For the purpose of this Regulation the following definitions shall apply:

- (1) ‘*electronic display*’ means a display screen and associated electronics that, as its primary function, displays visual information from wired or wireless sources;
- (2) ‘*television*’ means a 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;
- (3) ‘*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 network channels;
- (4) ‘*monitor*’ or ‘*computer monitor*’ means an electronic display intended for one person for close viewing such as in a desk based environment;
- (5) ‘*digital photo frame*’ means an electronic display that displays exclusively still visual information;
- (6) ‘*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;
- (7) ‘*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;
- (8) ‘*all-in-one video conference system*’ means a dedicated system designed for video conferencing and collaboration, integrated within a single enclosure, whose specification shall include all of the following features:
 - (a) support for specific videoconference protocol ITU-T H.323 or IETF SIP as delivered by the manufacturer;
 - (b) camera(s), display and processing capabilities for two-way real-time video including packet loss resilience;
 - (c) loudspeaker and audio processing capabilities for two-way real-time hands-free audio including echo cancellation;
 - (d) an encryption function;
 - (e) High Network Availability (HiNA) as defined in Article 1 of Commission Regulation (EC) No 1275/2008;
- (9) ‘*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:
 - (a) colour calibration function;

- (b) 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 or screen marker;
 - (c) Serial Digital Interface (SDI) or Video over Internet Protocol (VoIP) integrated with the product;
 - (d) not intended for use in public areas.
- (10) *'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:
- (a) primarily designed to be installed hanging, mounted on a ground stand or fixed to a physical structure for viewing by multiple people;
 - (b)
 - (c) to be necessarily used with computer software with specific functionalities to manage content and interaction;
 - (d) integrated or or to be integrated with a computer for running the software in point (c);
 - (e) a display surface greater than 40 dm²;
 - (f) user interaction by touch or other means such as hand, arm gesture or voice.
- (11) *'professional display'* means an electronic display designed and marketed for professional use for editing video and graphic images. Its specification shall include all of the following features:
- (a) a contrast ratio of at least 1000:1 measured at a perpendicular to the vertical plane of the screen and at least 60:1 measured at a horizontal viewing angle of at least 85° relative to that perpendicular and at least 83° from the perpendicular on a curved screen, with or without a screen cover glass;
 - (b) a native resolution of at least 2,3 mega pixels;
 - (c) colour Gamut support is 38,4 % of CIE LUV or greater (equivalent to greater than 99 % of Adobe RGB and over 100 % of RGB colour space). Shifts in colour space are allowable as long as the resultant colour space is at least 38,4 % of CIE LUV. Colour and luminance uniformity shall be as required for Grade 1 monitors;
- (12) *'security display'* means an electronic display whose specification shall include all of the following features:
- (a) self-monitoring function capable of communicating at least one the following information to a remote server:
 - power status;
 - internal temperature from anti-overload thermal sensing;
 - video source;
 - audio source and audio status (volume/mute);
 - model and firmware version;

- (b) user-specified specialist form factor facilitating the installation of the display into professional housings or consoles.
- (13) *'digital signage display'* or *'signage display'* means an electronic display that is designed primarily to be viewed by multiple people in non-desktop based environments. Its specifications shall include all of the following features:
- (a) unique identifier to enable addressing a specific display screen;
 - (b) a function disabling unauthorised access to the display settings and displayed image;
 - (c) 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;
 - (d) designed to be installed hanging, mounted or fixed to a physical structure for viewing by multiple people;
 - (e) does not integrate a tuner to display broadcast signals.
- (14) *'integrated'* means organized and structured inside a product so that all constituent units of the whole function cooperatively;
- (15) *'Medical display'* means an electronic display covered by the scope of:
- (a) Council Directive 93/42/EEC concerning medical devices; or
 - (b) Regulation (EU) 2017/745 of the European Parliament and of the Council on medical devices; or
 - (c) Council Directive 90/385/EEC of 20 June 1990 on the approximation of the laws of the Member States relating to active implantable medical devices⁵⁵; or
 - (d) Directive 98/79/EC of the European Parliament and of the Council on in vitro diagnostic medical devices; or
 - (e) Regulation (EU) 2017/746 of the European Parliament and of the Council on in vitro diagnostic medical devices; or
 - (f) any amendment to or modification of the above mentioned legislation.
- (16) *'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.

Article 3

Obligations of suppliers

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;
 - (c) if requested by the dealer, the product information sheet shall be made available in printed form;

⁵⁵ OJ L 189, 20.7.1990, p. 17.

- (d) the content of the technical documentation uploaded into the product database is according to Annex VI;
 - (e) 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;
 - (f) 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;
 - (g) a label shall be printed on the packaging or stuck on it;
 - (h) 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;
 - (i) an electronic product information sheet, as set out in Annex V, is made available to dealers for each electronic display model.
2. The energy efficiency class shall be based on the Energy Efficiency Index calculated in accordance with Annex II.

Article 4
Obligations of dealers

Dealers of electronic displays shall ensure that:

- (a) each electronic display, at the point of sale, bears the label provided by suppliers in accordance with point (a) of Article 3(1) 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 Article 3.1(h) 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;
- (d) any visual advertisement for a specific model of electronic display contains the energy efficiency class and the range of efficiency classes available on the label, in accordance with Annex VII;
- (e) 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.

Article 5

Obligations of service provider on internet hosting platforms

Where a hosting service provider as referred to in Article 14 of Directive 2000/31/EC of the European Parliament and of the Council⁵⁶ allows the selling of electronic displays through its Internet website, the service provider shall enable the showing of the electronic label and electronic product fiche 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.

Article 6

Measurement methods

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

Article 7

Verification procedure for market surveillance purposes

Member States shall apply the procedure laid down in Annex IX to this Regulation when performing the market surveillance checks referred to in Article 8(3) of Regulation (EU) 2017/1369.

Article 8

Review

The Commission shall review this Regulation in the light of technological progress and present the results of this review, including, if appropriate, a draft revision proposal, to the Consultation Forum no later than five years after its entry into force.

The review shall in particular assess the following:

- (a) the verification tolerances set out in Annex IX;
- (b) whether other electronic displays should be included in the scope;
- (c) whether it is feasible to develop appropriate notification methods for the energy consumption;
- (d) the possibility to introduce further requirements on durability or reparability.

In addition, the Commission shall review the label to rescale it when the requirements of Article 11 of Regulation (EU) 2017/1369 are met.

⁵⁶ Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (OJ L 178, 17.7.2000, p. 1).

Article 9

Repeal

Regulation (EU) No 1062/2010 is repealed with effect from *[OP please insert the date - the day of entry into force of this Regulation]*.

Article 10

Entry into force and application

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

It shall apply from 1 April 2021. However, point (a) of Article 3(a) shall apply from 1 January 2021.

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

Done at Brussels,

For the Commission
Jean-Claude JUNCKER
The President



Brussels, **XXX**
[...](2018) **XXX** draft

ANNEXES 1 to 9

ANNEXES

to the

Commission Delegated Regulation

**supplementing Regulation (EU) 2017/1369 of the European Parliament and
of the Council with regard to energy labelling of electronic displays**

and repealing Commission Delegated Regulation (EU) No 1062/2010

ANNEX I

Definitions for the purposes of the Annexes

The following definitions shall apply for the purposes of the Annexes:

- (1) '*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;
- (2) '*contrast ratio*' means the difference between the peak brightness and black level in an image;
- (3) '*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);
- (4) '*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;
- (5) '*by default*' means a specific feature or setting that is activated or set at the factory and available when the customer uses the product for the first time or after performing a "reset to factory settings" action, if allowed by the product. A change of a setting parameter by the user shall not automatically change any other parameter set as default without notifying the user;
- (6) '*pixel (picture element)*' means the area of the smallest element of a picture that can be distinguished from its neighbouring elements, as defined in standard IEC 60050;
- (7) '*on mode*' means a condition in which the product is connected to a power source, has been activated and is providing one or more of its display functions;
- (8) '*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;
- (9) '*normal configuration*' or '*home configuration*', '*standard mode*' or, for televisions, '*home mode*', means a display screen 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 a typical domestic or office environment. The normal configuration is the condition in which the declared values for off, standby, networked standby and on mode are measured;
- (10) '*brightest on mode configuration*' or '*shop mode*' means the configuration of the electronic display, pre-set by the supplier, which provides an acceptable picture with the highest measured luminance. This includes a pre-set mode incorporated 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;
- (11) '*screen area*' means the viewable screen 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);

- (12) *'room presence sensor'* or *'gesture detection sensor'* or *'occupancy sensor'* means a sensor monitoring and reacting to the 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;
- (13) *'off mode'* means a condition in which the equipment is connected to the mains power source and is not providing any function;
- (14) *'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:
- reactivation function, or reactivation function and only an indication of enabled reactivation function or
 - information or status display.
- (15) *'reactivation function'* means a function that via a remote switch, a remote control unit, an internal sensor, a timer or, for networked displays, the network, provides a switch from any standby mode to a mode, other than off-mode, providing additional functions;
- (16) *'display mechanism'* means any screen, including tactile screen, or other visual technology used for displaying internet content to users;
- (17) *'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;
- (18) *'tactile screen'* means a screen responding to touch, such as that of a tablet computer, slate computer or a smartphone;
- (19) *'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;
- (20) *'external power supply (EPS)'* means a device as defined in Commission Regulation (EU) [OP – please insert the number of the Ecodesign Regulation laying down ecodesign requirements for external power supplies, repealing Regulation (EC) No 278/2009].
- (21) *'standardised EPS'* means an external power supply designed to provide power to various devices and that is complying to a standard issued by an international standardization organization.
- (22) *'quick response (QR) code'* is 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 registration database;
- (23) *'audio-set configuration'* means an on mode test condition for the electronic display that disables or minimizes the power demand of the internal audio system during the on mode power measurement for the purposes of calculating the Energy Efficiency Index (EEI);

A. Energy efficiency classes

The energy efficiency class of an electronic display shall be determined on the basis of its Energy Efficiency Index (EEI) as set out in Table 1. The Energy Efficiency Index (EEI) 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)
A (most efficient)	$EEI < 0.30$
B	$0.30 \leq EEI < 0.40$
C	$0.40 \leq EEI < 0.50$
D	$0.50 \leq EEI < 0.60$
E	$0.60 \leq EEI < 0.75$
F	$0.75 \leq EEI < 0.90$
G (least efficient)	$0.90 \leq EEI$

B. Energy Efficiency Index (EEI)

The Energy Efficiency Index (EEI) of the electronic display shall be calculated using the following equation:

$$EEI = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0,02 + 0,004 \times (A - 11)) + 4] + 3) + corr_{lum}}$$

where:

A represents the viewing surface area in dm²;

$P_{measured}$ is the measured power in on mode set as indicated in Table 2;

$corr_{lum}$ is a correction factor set as indicated in Table 3.

Table 2: $P_{measured}$ measurement

Dynamic Range level	$P_{measured}$
Standard Dynamic Range (SDR): $P_{measured_{SDR}}$	Power demand in Watts (W) in on mode, measured when displaying standardised dynamic broadcast content moving picture test sequences. Where allowances are applicable according to part C of this Annex, they should be deducted from $P_{measured}$ for the EEI calculation.
High Dynamic Range (HDR) $P_{measured_{HDR}}$	Power demand in Watts (W) in on mode, measured as for $P_{measured}$ but with the HDR functionality activated by metadata in the

	standardised HDR dynamic broadcast content moving picture test sequence. Where allowances are applicable according to part C of this Annex, they should be deducted from $P_{measured}$ for the EEI calculation.
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Table 3: $corr_{lum}$ value

Electronic Display type	$corr_{lum}$ value
Television	0.0
Monitor	0.0
Digital signage	$0.00062 * (lum - 500) * A$ <i>where "lum" is the peak white luminance, in cd/m², of the brightest pre-set mode of the display and A is the display area in dm²</i>

C. Allowances

Allowances reducing the value of $P_{measured}$ for the purposes of calculating the EEI.

(1) Electronic display audio system

The audio-set configuration must be achievable through the electronic display product remote control or through an externally accessible control or through a network interface. Information describing the procedure to establish the *audio-set* configuration must be provided as required in Annex VI.(5).(d).iv. If it is not provided, then the on mode power requirement must be measured for EEI calculation purposes with the electronic display audio set configuration meeting the on mode testing requirements of a suitable harmonised measurement standard.

(2) Electronic display with ABC enabled by default

Electronic displays shall qualify for a 15 % reduction in $P_{measured}$, in the calculation of the EEI if they meet all of the following requirements:

- (a) ABC is enabled by default in the normal configuration of the electronic display and persists in any other standard dynamic range configuration, with the exception of the brightest on mode configuration.
- (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) 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;
- (d) 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;

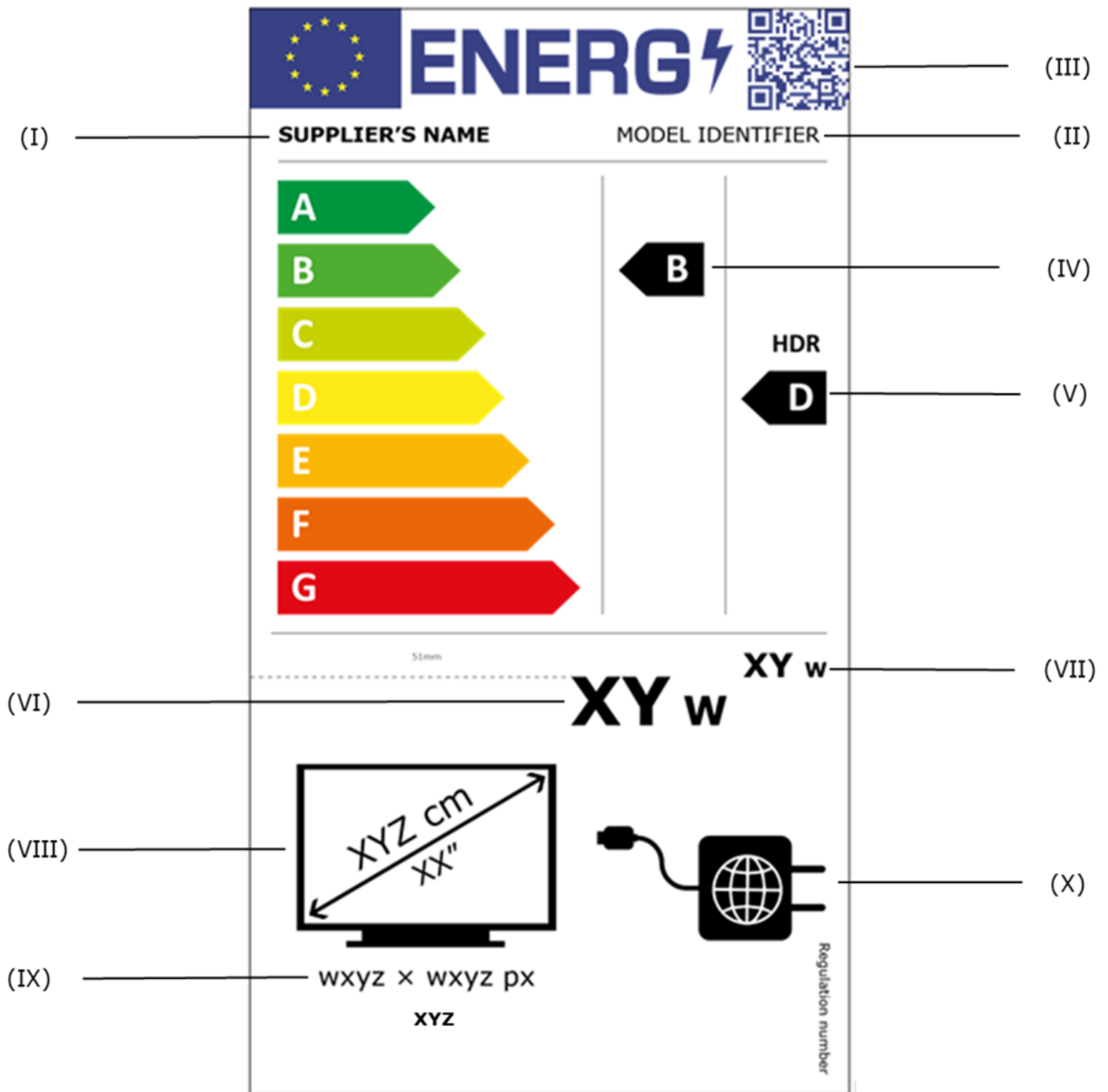
- (e) the ABC control of the display screen luminance must meet all of the following characteristics when the ambient light condition measured at the ABC sensor changes:
- the measured screen luminance at 60 lux is between 65 % and 95 % of the screen luminance measured at 100 lux;
 - the measured screen 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.

(3) Electronic displays requiring an external standardised AC to DC EPS

For electronic display products supplied with a standardised DC power connection and placed on the market without the suitable standardised external AC to DC power supply in the packaging, $P_{measured}$ for the purposes of the EEI calculation shall be the DC input power.

ANNEX III
Label for electronic displays

1. LABEL INFORMATION:



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

- (I) supplier's name or trade mark;
- (II) supplier's model identifier;
- (III) QR code;
- (IV) the energy efficiency class determined in accordance with Annex II.A when using $P_{measured_{SDR}}$. The head of the arrow containing the energy efficiency class of

the electronic display shall be placed at the same height as the head of the arrow of the relevant energy efficiency class;

(V) the energy efficiency class determined in accordance with Annex II.A when using $P_{measured_{HDR}}$;

(VI) on mode power consumption in Watts, when playing content with SDR, rounded to the nearest integer;

(VII) on mode power consumption in Watts, when playing content with HDR, rounded to the nearest integer;



(VIII) visible screen diagonal in centimetres and inches;

(IX) horizontal and vertical resolution in pixels;

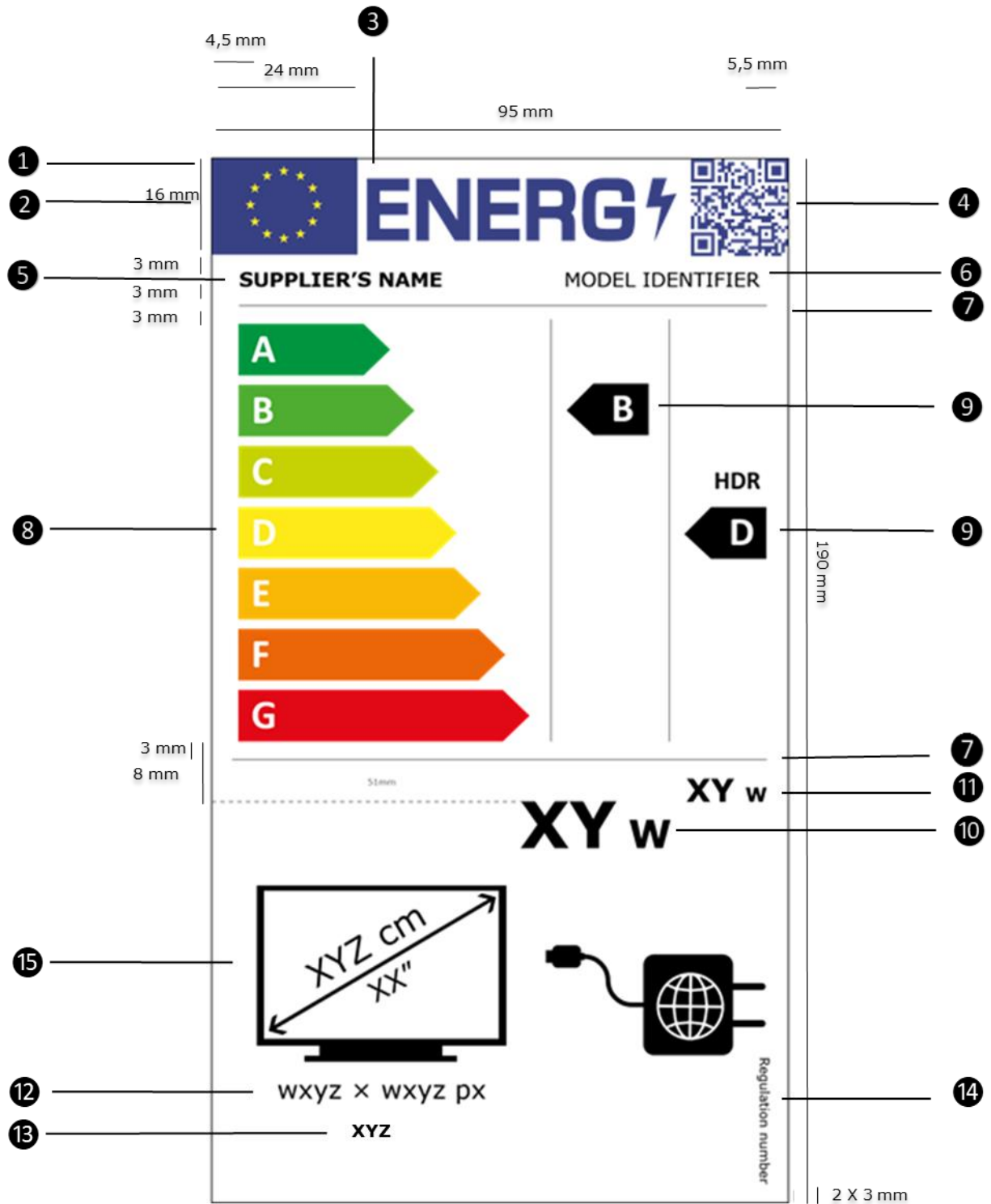
(X) EPS logo, if the display is placed on the market with a standardised external power supply.

(XI) name for the combination of resolution with size ratio (optional).

Table 4
Standardised external power supply

Situation	Symbol to use and colour
The displays is placed on the market with a standardised external power supply included in the electronic display package	 Colour: 0,0,0,100
The displays has a standardised power input for an external poer supply (not included in the package)	 Colour: 0,0,0,50
The displays is placed on the market with an internal or an external non standardised power supply.	

2. LABEL DESIGN:



2.1. Description

Whereby:


- (a) The background of the label shall be white;
- (b) The single typeface shall be Verdana;

- (c) Colours shall be according to the CMYK – cyan, magenta, yellow and black, colour codes following this example: 0,70,100,0: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black. Black is 0,0,0,100 and white is 0,0,0,0;
- (d) The label shall fulfil all the following requirements (numbers refer to the numbers in the black bullets in the figure above):
- (1) the border of the label shall have weight of 1 pt;
 - (2) the colour of the background of the EU logo shall be 1,80,0,0 and the colour of the stars shall be 0,0,100,0;
 - (3) the colour of the energy logo shall be 100,80,0,0;
 - (4) the colour of the QR code shall be 100,80,0,0;
 - (5) the supplier’s name shall be in colour black in font bold, 9 pt;
 - (6) the model identifier shall be in colour black in font regular, 9 pt;
 - (7) the dividers shall be 86 mm wide and have a weight of 1 pt. The colour of the divider shall be black;
 - (8) the A to G scale shall be as follows:
 - the colour of the letter indicating energy rating scale shall be white and the font bold, 19 pt;
 - dimensions and colours of the energy rating scale shall be as follows:

Rating scale and class	Colours (CMYK)
<p>The diagram shows a vertical energy rating scale with seven classes, A through G, represented by horizontal arrows pointing to the right. The arrows are colored as follows: A (green), B (light green), C (yellow-green), D (yellow), E (orange), F (red-orange), and G (red). The arrows increase in length from A to G. To the left of the arrows, there are six 1,5 mm vertical segments. To the right, there are three 1,5 mm vertical segments. The total height of the scale is 69 mm. Dimensions for each class are: D: 36 mm, C: 33 mm, B: 29 mm, A: 23 mm, G: 48 mm, F: 44 mm, E: 40 mm.</p>	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



- (9) the energy efficiency class shall be as follows:
 - the rating scale arrow and the energy efficiency class arrow shall be aligned;

– dimensions and colour shall be as follows:

Rating scale and class	Colours (CMYK)
	<p>The arrow: 0,0,0,100 (black)</p> <p>The letter: 0,0,0,0 (white)</p> <p>The letter font: bold, 33 pt</p>

- (10) the power consumption in SDR shall be in font bold, 30 pt, W shall be in font bold, 18 pt;
 - (11) the power consumption in HDR shall be in font bold, 16 pt, W shall be in font bold, 11 pt;
 - (12) the resolution indication shall be colour black in font regular, 9 pt;
 - (13) the optional name for the resolution and size ratio combination shall be colour black in font regular, 9 pt;
 - (14) the numbering of the regulation shall be in colour black and font regular, 6 pt.
 - (15) the diagonal size of the visible screen area in cm and inches shall be in colour black and font regular, 16 pt;
 - (16) the EPS logo shall be as indicated in **Error! Reference source not found..**
- (e) For electronic displays with a size of the diagonal of the viewable area less than cm 127 (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 into a smartphone.

Table 5
Standardised external power supply

Situation	Symbol to use and colour
The displays is placed on the market with a standardised external power supply included in the electronic display package	 Colour: 0,0,0,100
The displays has a standardised power input for an external poer supply (not included in the package)	 Colour: 0,0,0,50
The displays is placed on the market with an internal or with an external non standardised power supply.	

Measurement and calculation methods

For the purposes of compliance and verification of compliance with the applicable requirements of this Regulation, 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.

1. MEASUREMENTS OF ON MODE POWER DEMAND

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

- (1) Conditions of electronic displays for measuring the on mode power demand:
 - (a) electronic displays shall be measured in the normal configuration;
 - (b) where an electronic display has an *audio-set* configuration, this shall be activated during on mode power demand measurements according to the instructions provided under Annex VI.5.(d)iv.
- (2) General conditions:
 - (a) measurements shall be made at an ambient temperature of 23 °C +/- 5 °C;
 - (b) measurements shall be made using a standardised dynamic broadcast video signal test loops representing typical broadcast content for electronic displays. 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;
 - (c) measurements shall be made after the electronic display has been in the off-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 the ABC function exists, measurements shall be made with it switched off. If the ABC function cannot be switched off, then the measurements shall be performed in an ambient light condition of 100 lux measured at the ABC sensor.

2. MEASUREMENTS OF PEAK LUMINANCE

Measurements of the peak luminance shall fulfil both of the following conditions:

- (1) measurements of peak luminance shall be made with the electronic display in SDR and not HDR mode with a luminance meter detecting that portion of the screen exhibiting a full (100 %) white image which is part of a 'full screen test' test pattern. The average picture level (APL) of the test pattern must not exceed the point where the electronic display luminance is affected by power limiting or other irregularities in the pixel drive system of the electronic display;

- (2) measurements of luminance shall be made without disturbing the luminance meter's detection point on the electronic display. The required measurements are the value of peak white luminance in the normal configuration and the value of peak white luminance in the brightest on mode configuration. The latter setting should be as provided for in Annex I(12)

ANNEX V

Product information sheet

The information part of the product information sheet pursuant to Article 3(d) shall be provided by the supplier in the product registration database established by Regulation (EU) 2017/1369 according to Table 5.

The product manual or other literature provided with the product shall clearly indicate the link to the model in the database as a human-readable Uniform Resource Locator (URL) or as QR-code or providing the product registration number.

Table 5: Information, order and format of the product information sheet

	INFORMATION	Value and precision	Unit	Notes		
1.	Supplier's name, registered trade name or registered trade mark and contact details		TEXT			
2.	Supplier's model identifier		TEXT			
3.	Energy efficiency class for standard Definition Range (SDR)	[A/B/C/D/E/F/G]				
4.	On mode power demand for Standard Definition 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]				
6.	On mode power demand in High Definition 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		
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]	TEXT	Select one		
a	Annual energy consumption (if television)	X	kWh/a	Considering 4 on, 20 h standby, 365 days, rounded to the first decimal place		
b	Annual energy consumption (if monitor)	X	kWh/a	Considering 8 on, 16 h standby, 220 days, 24 h standby 145 days, Rounded to the first decimal place		
c	Annual energy consumption (if signage)	X	kWh/a	Considering 24 h on, rounded to the first decimal place		
d	Annual energy consumption (if other)	X	kWh/a	Hours in on mode and in standby mode to be indicated, rounded to the first decimal place		
11.	Size ratio		:	E.g. 16:9 or 21:9		
12.	Screen resolution (pixels)	H	x	V	pixels	Horizontal and vertical pixels
13.	Resolution and size ratio combination				TEXT	Optional, e.g. UHD 4k, WQHD
14.	Screen diagonal	X,X /X inches	cm/inc hes			In cm according to the International System of Units (SI) (and, optionally, according to the imperial system). Size in cm rounded to the first decimal place (in inches, rounded to the integer place)
15.	Visible screen area	X,X	cm ²			Rounded to the first decimal
16.	Panel technology used	LCD / LED LCD / QLED LCD / OLED / Microled LED / QDLESD	TEXT			Select one

			/ FED / EPD / Other		
17.	Automatic Brightness Control (ABC) available		[YES/NO]		Must be activated as default.
18.	Voice recognition sensor available		[YES/NO]		
19.	Room presence sensor available		[YES/NO]		Must be activated as default.
20.	Image refresh frequency rate		X	Hz	
21.	Minimum guaranteed availability of software and firmware updates (until):		GG MM AAAAA	date	
22.	Minimum guaranteed availability of spare parts (until):		GG MM AAAAA	date	
23.	Minimum guaranteed product support (until):		GG MM AAAAA	date	
24.	Power supply type:		Internal / external /, standardised		If external and standardised (<i>c</i> or <i>d</i>) the suitable pictogram is added in the energy label
<i>a.</i>	Internal power supply spare part code			TEXT	If internal power supply
<i>b.</i>	External power supply (non standard) spare part code			TEXT	If external power supply
<i>c.</i>	External power supply standardised (included in the product box)	Standard name		TEXT	If external power supply and standardised. If the 3 fields are filled, a black EPS symbol is displayed on the label
		Input voltage	X	V	
		Output voltage	X	V	
<i>d.</i>	External and 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. If the 4 fields are filled, a grey EPS symbol is displayed on the label
		Required output voltage	X,X	V	
		Required delivered current	X,X	A	
		Required current frequency	xx	Hz	

ANNEX VI
Technical documentation

The technical documentation referred to in Article 3(e) shall include:

- (1) Identification data (general description of the model):
 - (a) brand 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) measured technical parameters of the model and calculations performed with the measured parameters as listed in Table 6;

Table 6: Measured technical parameters

		Value and precision	Unit	Notes
	General			
1.	Ambient temperature	XX,XX	°C	
2.	Test voltage	X	V	
3.	Frequency	X,X	Hz	
4.	Total harmonic distortion (THD) of the electricity supply system			
	For On-mode			
5.	Peak luminance of the brightest on mode configuration	X	cd/m ²	
6.	Peak luminance of the normal configuration	X	cd/m ²	
	Calculated peak luminance ratio	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 demand requirements for off mode and/or standby mode.	mm:ss		
	For ABC			If available and activated by default
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	
	Percentage of power reduction due to ABC action between the 100 lux and 12 lux ambient	XX,X	%	

	light conditions.			
	Display peak white luminance at each of the following ambient light intensities measured at the at the ABC sensor of the electronic display, 100 lux, 60 lux, 35 lux, 12 lux.	x	cd/m ²	

- (5) 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);
 - (d) for on mode:
 - (i) the characteristics of the dynamic broadcast-content video signal representing typical broadcast TV content; for the HDR dynamic broadcast content video signal the display must be automatically switched to HDR mode by the HDR metadata of that signal;
 - (ii) the sequence of steps for achieving a stable condition with respect to power demand level;
 - (iii) the picture settings used for the brightest peak luminance measurement and the test pattern for the video signal used for the measurement; and
 - (iv) information describing the procedure to establish the *audio-test* configuration. If no information is provided it shall be assumed that the audio system does not have an *audio-test* configuration and that the audio system power shall be included in the declared average on mode power.
 - (e) For standby and off mode:
 - (i) the measurement method used;
 - (ii) description of how the mode was selected or programmed including any enhanced reactivation functions;
 - (iii) sequence of events to reach the mode where the electronic display automatically changes modes.
 - (f) For displays with a designated computer signal interface:
 - (i) confirmation that the display product prioritises the computer display power management protocols set out in Point 6.2.3 of Annex II of Commission Regulation (EU) No 617/2013¹. Any deviation from the protocols should be reported;
 - (g) For networked electronic displays only:
 - (i) number and type of network interfaces and, except for wireless network interfaces, their position in the electronic display;
 - (ii) 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;

¹ Commission Regulation (EU) No 617/2013 of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers (OJ L 175, 27.6.2013, p. 13).

- (iii) 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.
 - (h) For each type of network port:
 - (i) the default time (mm:ss) after which the power management function, switches the display into a condition providing networked standby;
 - (ii) the trigger to be used to reactivate the electronic display.
- (6) where the information included in the technical documentation file for a particular electronic display model has been obtained:
 - (a) from an equivalent model, or
 - (b) by calculation on the basis of design or extrapolation from another model of the same or a different supplier, or both,

the technical documentation shall include, as appropriate, a list of the all equivalent electronic display models, 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.
- (7) the contact details of the person empowered to bind the supplier, if not included in the technical information uploaded into the database, shall be made available, on request, to market surveillance authorities or to the Commission for carrying out their tasks under this Regulation.

ANNEX VII

Information to be provided in visual advertisements, in promotional material in distance selling and in telemarketing

1. In visual advertisements, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(e) and Article 4(1)(c), the energy class and the range of efficiency classes available on the label shall be shown with an arrow matching the letter of the energy class, as indicated in Figure 1.
2. In promotional material, for the purposes of ensuring conformity with the requirements laid down in Article 3(1)(f) and Article 4(1)(d) the energy class and the range of efficiency classes available on the label shall be shown with an arrow matching the letter of the energy class, as indicated in Figure 1.
3. Any paper based distance selling must show the energy class and the range of efficiency classes available on the label shall be shown with an arrow matching the letter of the energy class, as indicated in Figure 1.
4. Telemarketing based distance selling must specifically inform the customer of the energy class of the product and of the range of energy classes available on the label.
5. For all the situations mentioned in points 1 to 4, it must be possible for the customer to access the full label and the product information sheet through a link to the product database website, or to request a printed copy.

Figure 1: Coloured arrow example, with range of energy classes indicated



For all the situations mentioned in points 1 to 4, it must be possible for the customer to access the full label and the product information sheet through a link to the product database website.

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 Article 3(1)(g) shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in Annex 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 shall:
 - (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label;
 - (b) indicate on the arrow energy efficiency class of the product in white in a font size equivalent to that of the price; and
 - (c) have one of the two formats in **Error! Reference source not found.:**

Figure 2: Coloured left/right arrow example, with range of energy 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 3 of this Annex shall be shown on the display mechanism in proximity to the price of the product;
 - (b) the image shall link to the label;
 - (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
 - (d) the label shall be displayed by pop up, new tab, new page or inset screen display;
 - (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;
 - (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism;
 - (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price.
4. The appropriate product information sheet made available by suppliers in accordance with Article 3(1)(h) 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 registration database established under Regulation (EU) 2017/1369, '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.

ANNEX IX

Verification procedure for market surveillance purposes

The verification tolerances set out in this Annex relate only to the verification of the measured parameters by Member State authorities. These tolerances 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.

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

- (1) The Member State authorities shall verify one single unit of the model.
- (2) The model shall be considered to comply with the applicable requirements if:
 - (a) the values given in the technical documentation pursuant to Article 3.3 of Regulation (EU) 2017/1369 (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
 - (b) 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
 - (c) when the Member State authorities test 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 1.
- (3) If the results referred to in points 2(a) or (b) are not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.
- (4) If the result referred to in point 2(c) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more different models that have been listed as equivalent models in the supplier's technical documentation.
- (5) 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 7.
- (6) If the result referred to in point 5 is not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.
- (7) The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay after a decision being taken on the non-compliance of the model according to points 3 and 6.

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

The Member State authorities shall only apply the verification tolerances that are set out in Table 7 and shall only use the procedure described in points 1 to 7 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 7: Verification Tolerances

Parameter	Verification tolerances
On mode power demand in Watts	The determined value ⁽¹⁾ shall not exceed the declared value by more than 7 %.
Standby, off mode and networked standby power demand in Watts, as applicable.	The determined value shall not exceed the declared value by more than 0,10 W.
The peak luminance ratio	Where applicable, the determined value shall not be lower than 60 % of the peak luminance of the brightest pre-set on mode condition provided by the electronic display.’
Visible screen diagonal in inches and centimetres	The determined value ⁽¹⁾ does not deviate more than plus or minus 1 cm or 0,14 inches from the declared value.
Visible screen area in dm ²	The determined value ⁽¹⁾ does not deviate more than plus or minus 0,1 dm ² from the declared value.
The screen resolution in horizontal and vertical pixels	The determined value ⁽¹⁾ shall not deviate from the declared value.

⁽¹⁾ In the case of three additional units tested as prescribed in point 4, the determined value means the arithmetic average of the values determined for these three additional units.