DIGITALEUROPE

Follow-up position on draft display regulation

Brussels, 29 January 2015

DIGITALEUROPE would like to share a follow-up position to the Consultation Forum discussion held on the 10th of December. It includes new arguments and adds aspects to some of the arguments explained previously – most recently in the position dated 5th of December.

Previous DIGITALEUROPE positions are included in the Annex to this document. Among the major concerns highlighted in this paper are:

1. Importance of maintaining the current Energy Label logic
2. Scope extension beyond the EU consumer display market
3. Unrealistic ambition levels for on-mode requirements
4. Justification for a UHD allowance
5. Inadequate Automatic Power Down for connect displays
6. Alignment of Automatic Brightness Control measurement requirements

It is important to emphasize that DIGITALEUROPE continues to strongly stand by the validity of other, previous arguments that are not covered by this follow-up position, including notably those concerning End-of-Life requirements and On-mode consumption limits.

1. <u>Importance of maintaining the current Energy Label logic</u>

DIGITALEUROPE would once more like to support the current proposal from the EU Commission for introducing only limited changes to the Energy Label regulation, by **keeping the same formula and only introducing adjustments to the top classes.**

The current proposal already introduces the challenge of scope expansion, by covering PC monitors, a product group not yet under the scope of any labelling measure.

DIGITALEUROPE would also like to point out that the energy labelling for consumer electronics through the current measure for televisions is a relatively recent instrument with significant success.

Also, contrary to other product groups subject to similar labelling exercises, the Television Energy Label (and the current proposal for Displays) has not yet exhausted its capability to differentiate products on the market, since products on the market are still spread by at least 4 different product classes and no product has yet managed to qualify for the top A+++ class.

The current proposal is believed to efficiently extend the relevance of the energy label for some more years, by introducing higher differentiation for the top classes.

Due to these arguments, we cannot support the proposals for changing the equation or the EEI grading (e.g. to an A to G grading only).

Such changes would lead to downgrading of products on the market, which would introduce significant burden to manufacturers and possible confusion for consumers during the transition period.

Additionally, in light of the upcoming revision of the Energy Label Directive, DIGITALEUROPE believes that any more significant changes should be aligned with this new regulatory framework.

This would avoid that two significant downgrading exercises occur in such a limited time frame.

2. Scope beyond the EU consumer display market

DIGITALEUROPE would like to once more reinforce the position for the **scope of the Ecodesign and the Energy Label measure to be aligned, by setting requirements only for Televisions and PC monitors.**

Covering professional products, even if only by information requirements, would generate a disproportional additional burden, without clear advantages having been fully studied and assessed.

The professional product groups covered by End of Life requirements in the scope (medical, s, broadcast and high performance displays) are for Business-to-Business markets, where production quantities are typically small and product life is long.

Issues with new information requirements

The information to be gathered under the proposed information requirements also constitutes a challenge for some of these product categories, due to the lack of standardized methods of measurement in some cases (e.g. End-of-Life requirements) or the inappropriateness of the requirements and measurement standards for other product groups (e.g. declaration of consumption and power management figures for status or security displays).

Additionally, the benefit generated by introducing the discussed End-of-Life information for recyclers is expected to be small, while the burden for industry and MSAs would be considerably high.

Implications for signage products

DIGITALEUROPE would also like to comment on the discussed proposal to set requirements for signage displays under these Ecodesign and Energy Label regulations. Signage products are generally put on the market through Business-to-Business channels and often through tenders that demand information on Energy Efficiency of the product. Additionally these products are already in scope of the EU Energy Star criteria for Displays that have considerable uptake.
Under the EU Commission study for the Ecodesign Work Plan, the consultant has identified the high level of complexity and specialization seen already on the market for this product group. Therefore, we feel that is premature to set any requirements for signage displays until these products are subject to an in-depth preparatory study that can fully assess what should be appropriate for this category.

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3. Unrealistic ambition level for On-mode requirements

DIGITALEUROPE would like to reiterate that the current Commission proposal is too ambitious in setting the On-mode consumption limits, since these will limit a significant share of products from being sold in the EU market.

Removal of Tier 3

During the Consultation Forum, it was proposed that the regulation should be limited to only two tiers of on-mode consumption limits, within the enforcement period of this revision (i.e. deleting Tier 3 beyond the revision). **DIGITALEUROPE would support limiting the requirements to only two Tiers**, given that the proposed Tier 3 is too ambitious, considering the expected technology improvement potential.

Comparison with Energy Star

During the Consultation Forum, it was stated that the current draft proposal was not ambitious enough, since it was aligned with the Energy Star specifications (Tier 2 aligned with the current version 6.1 and Tier 3 with the upcoming version 7.0), which a large share of the US market was already able meet. However, DIGITALEUROPE would like to point out that such statement does not take into account the significant differences between the calculations for both instruments. The Energy Star version 6.1 On-mode specification is calculated based on a weighted average of the On-mode consumption of the product with and without the Automatic Brightness Control (ABC) feature enabled, as follows:

$$P_{ON\_ABC} = (0.55 \times P_{300}) + (0.45 \times P_0)$$

Or:

$$P_{ON\_ABC} = (0.25 \times P_{100}) + (0.25 \times P_{35}) + (0.25 \times P_{12}) + (0.25 \times P_3)$$

Where:

- P_{ON_ABC} is the calculated On Mode power with ABC enabled by default
- P_{300} is the measured On Mode power with ABC disabled (300 lux condition)
- P_{100}, P_{35}, P_{12} and P_3 are the measured On mode power at different ABC operation conditions (100 lux, 35 lux, 12 lux and 3 lux)

By taking ABC into account in the On-mode declaration, **US TV Energy Star On-mode consumption values will tend to be significantly (30-40%) lower than those declared under the EU Ecodesign methodology**, which defines that ABC needs to be disabled for measurement of On-mode.

Also Energy Star version 7.0, **UHDTVs are given an on-mode consumption allowance of 50%** over other TVs, which will significantly improve the chances of these products to qualify for the criteria.

Additionally Energy Star is a voluntary certification scheme aiming to cover the best performing products on the market.

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Therefore, any comparison between the level of ambition of the Ecodesign regulation (a market access condition) and the Energy Star program needs to take into account all of these significant differences in goal and methodology of both regulatory instruments.

Alternative DIGITALEUROPE proposal for On-mode

For the purpose of simplification, the Power$_{max}$ could be changed by the following single equation:

$$Power_{max} = P_{basic} + k \times 330 \times tanh(Area/180)$$

Where:

P$_{basic}$ = 10 Watt for Non-UHD

and

P$_{basic}$ = 16 Watt for UHD

and:

	K	
	Tier 1	Tier 2
Non-UHD	1.00	0.80
UHD	1.20	1.02

4. Justification for a UHD allowance

DIGITALEUROPE would like to provide additional technical justification for the requested UHD allowance in the above proposal.

UHD displays need more power than HD displays for higher speed signal processing and to compensate for a lower panel transmittance. Therefore, considering the changes in the Display market towards higher resolutions, UHD rather than HD displays should be used as a benchmark for display efficiencies and to decide power limits.

Current UHD technology

Current UHD TVs on the market have energy classes between A and C whereas the majority of HD TVs are in the range of energy classes between A and A++.

In the Clasp discussion paper table 3-2, two UHD displays are compared with two HD displays in order to show that UHD technology already has reached HD efficiency. But actually one of the listed UHD monitors has energy class B, the other might be energy class C. Very unfortunately some power data is wrong thus leading to the wrong conclusion in the Clasp paper about a high UHD efficiency (refer to the corrected table in the appendix).

Upcoming UHD technology

DIGITALEUROPE would also like to stress that the proposed regulation should also allow for upcoming technology developments. UHD technology is moving towards further improved picture quality. The latest revision of ITU recommendation for UHD broadcast technology[1] defines picture rates up to 100Hz/120Hz (currently 25Hz for 1080i), a colour gamut much wider than the sRGB / ITU-R 709 used by current TV broadcasting and an increase of amplitude resolution of up to 12 Bit (~4000 amplitude steps), whereas HD uses 8 Bit (~200 amplitude steps).

The advantage of higher picture rates, called High Frame Rate (HFR), is an improvement of clarity and sharpness for moving scenes. Higher amplitude resolution will be used to get deeper black and higher brightness (High Dynamic Range - HDR). The benefit of more real life colours on TV (Wide Colour Gamut - WCG) is evident. The features HFR and HDR require more power for signal processing, whereas WCG is further lowering the panel efficiency. HDR is currently discussed in the context of high brightness panels which are expected to need much more power for screen luminance. The Clasp paper discusses the power needs of several features, e.g. of WCG, but HDR and HFR features are not considered.

In the Clasp paper table 3-1 "efficiency improvement options" WCG is listed with a potential of 20% efficiency improvement using QD technology. This information could be misinterpreted to mean that both WCG and a 20% efficiency improvement are possible. A report from Nanosys[2] more clearly explains that an efficiency gain of up to 20% could be expected only if sRGB colour space is kept. It says that the efficiency for WCG could reach today's sRGB efficiency if QD is used. However, Clasp paper also mentions that QD technology might reach only 10% market penetration in 2020.

On page 27 Clasp paper states that "any increase of processing power needed for UHD will be masked by screen luminance power and it is proven to be insignificant in a major manufacturer's product." But especially smaller TVs have difficulty to reach high efficiency classes because the processing power is getting relevant compared to the power needed for the panel.

All in all there is no solid background given in Clasp paper which can be a basis for the very strict power limits for UHDT TVs recommended in the same report.

DIGITALEUROPE believes that an allowance for UHD displays will still allow the technology to progress, while effectively limiting very inefficient products from coming to the EU market.
Development of energy efficient displays will be, as it currently is, driven by energy label, which will still

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[1] ITU-R BT.2020-1: Parameter values for ultra-high definition television systems for production and international programme exchange. 06/2014

[2] High efficiency LCDs using Quantum Dot Films. Jian Chen, Jason Hartlove, Jeff Yurek, Ernie Lee, Steve Gensler Nanosys, Inc., Milpitas, CA

"When combined with today's high efficiency blue LEDs, quantum dot films can enable 20% higher power efficiency for sRGB color gamut displays by using higher transmission color filters. Furthermore, quantum dot films are capable of delivering wide color gamut solutions (e.g., Adobe-RGB and DCI-P3) without any penalty in power efficiency compared to today's sRGB displays using white LEDs."

differentiate the efficiency of different technologies in the market. However, **a power consumption limit set by the Ecodesign regulation should leave enough margins for the development of high efficiency and high picture quality.**

Very strict power limits as suggested in Clasp paper will remove high picture quality big screen size UHDTVs from the EU market even if the most power efficient technology is used.

5. Inadequate Automatic Power Down for connected displays

The current draft proposal of setting the Automatic Power Down feature to 4 hours after the last user interaction is not an adequate requirement for displays other than TVs, since these tend to not have a frequent direct user interaction (i.e. no volume or channel change).

Electronic displays marketed for computer monitoring only and electronic display products with various selectable display sources, shall comply with the power management protocols of a host device over those power management protocols and features described in point 3.1 when monitoring the host device.

Today's computer displays will enter a <0.5 W standby power state when they are commanded to do so, or within minutes of the input signal terminating. Thus, they have no problem meeting the spirit of the requirements.

However, **the term "computer" in section 3.4 must be replaced with "device" in order to recognize the possibility of displays being connected to equipment other than computers with power management protocols.** Examples of such devices include set-top boxes, blue-ray players and gaming consoles. When a display is connected to one of the devices, it should follow the power management instructions from the host device because the device has information necessary (including the time since the last end-user interaction) to decide when it is appropriate to employ an energy management function (which it is required to have as per EC 1275/2008).

Without this change in wording from "computer" to "device", displays would be forced to distinguish between an HDMI signal coming from a computer (which is strictly defined by EC 617/2013) from an HDMI signal coming from another device with a power management feature like a gaming console, and then follow the behaviour outlined in section 3.4 in the former case, and the behaviour outlined in section 3.1 in the latter.

This differentiation in signals is technically extremely difficult, if not impossible, and offers no improvement in energy savings. Therefore, we appreciate the Commission making this change to clarify the requirement and to ensure that the requirement makes sense for the product users.

6. Alignment of Automatic Brightness Control measurement requirements.

Under the draft regulations for the TV energy label Annex II 3, it requires a reduction in power consumption of 15% or more in power consumption between 35 Lux and 3 Lux ambient light levels with the automatic brightness control sensor enabled. However, the draft ecodesign regulation requires the technical

documentation under Annex II 6.1(j) for power consumption reduction to be confirmed between 100 Lux, 35 Lux, 12 Lux and 3 Lux.

This Ecodesign requirement is too onerous, in that while it is possible to measure the luminance at those points, it is highly problematic to measure and prove power reduction at the lowest end due to fluctuations in the luminance of any light emitting source at that level combined with the tolerance and margin in measurement set up over the time taken for the range of measurements.

DIGITALEUROPE would suggest the requirement is aligned at the lower end to the levels used in the TV Energy Label draft, so the measurement point at 12 Lux is removed.

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ANNEX 1:

Table 3-2. Comparison of HD and new UHD Displays

DE Comment

Manufacturer	Model	Resolution	Size (inches)	Brightness	Power	Power	Regulation	Description
Samsung	T28D310NH	1366 x 768 (HD)	27.5	300 cd/m^2	50 W	22 W	Energy Star	TV for US/ Canada
Samsung	U28D590D	3840 x 2160 (UHD)	28	370 cd/m^2	32 W	37 W	EU E-class B	Monitor
Acer	B296CL	2560 x 1080 (HD)	29	300 cd/m^2	45 W	36,3 W	?	21:9 Monitor with Loudspeakers
Acer	XB280HK	3840 x 2160 (UHD)	29	300 cd/m^2	42.5W	42,5 W	?	Monitor

Given the above findings, it does not appear to be necessary to have any extra power allowances for UHD displays, as the rate of technology evolution is so rapid these are already entering the market and proving they are also energy-efficient.

Power consumption values are based on different standards but nevertheless it can be seen that UHD displays need more power than HD displays.

ANNEX 2: Position on draft display regulation, 5 December 2014

DIGITALEUROPE welcomes the opportunity to comment the draft display regulations. The paper is divided into a section highlighting industry's major concerns and an annex with detailed comments and supporting argumentation on the Ecodesign and Energy label regulations for displays. This paper makes suggestions on how the objectives could be achieved differently. Our major concerns are:

1. Importance of maintaining the current Energy Label logic
2. Scope extension beyond the EU consumer display market
3. Unrealistic ambition levels for on-mode requirements
4. Micro-management through regulation
5. Inappropriate End-of-Life requirements
6. Unrealistic transition period for computer display products

The draft regulation which endeavors to combine different technologies under one electronic display regulation succeeds in creating a number of technical challenges that restrict technology developments and places an unacceptable compliance burden on computer display manufactures for products currently on the market.

In particular manufactures would highlight the following technical requirements as unrealistic or inappropriate and recommends an alternative proposal in the Annex:

- Align definition for enhanced performance displays with ENERGY STAR 6.0 for Displays
- Remove Auto Power Down for computer displays to avoid poor customer experience
- Exempt Integrated Computer Desktops from ErP Lot 5 as they are already covered in ErP Lot 3.

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1. <u>Importance of maintaining the current Energy Label logic</u>

DIGITALEUROPE supports the current proposal for the Energy Label regulation, in maintaining the same formula as in the current regulation. While the extension of the scope to the Energy Label regulation in order to include computer monitors could be accepted, it is believed that this is not the time for a full rescale of the Energy Label, either by complete change in EEI threshold for Energy Classes or by changing the current formulas for calculation.

Although DIGITALEUROPE acknowledges that the use of different equations for Ecodesign and Energy Label might not be ideal, we believe this is necessary in order to avoid the confusion in the market caused by rescaling exercises.

This is even more relevant considering the expected changes to be introduced by the revision of the Energy Label Directive. We believe that any rescaling should only happen under this New Directive, which would avoid two rescaling exercises in such close period.

However DIGITALEUROPE recognizes the need to increase the longevity of the current Energy Label, and would support the rescaling of the top Energy Class threshold as currently proposed. This would ensure that the top classes are only populated by a small share of the highest energy efficient displays.

2. <u>Scope beyond the EU consumer display market</u>

DIGITALEUROPE has always stressed that the scope of this regulation should be limited to consumer displays, by fully exempting professional products from requirements. However, the current draft still includes some information requirements for such products.

Information requirements for professional displays

The proposed draft limits energy related requirements to televisions, computer displays and digital photo frames. Still professional products like status displays, enhanced performance displays, broadcast displays, security displays and medical imaging displays have to comply with information requirements under point 6 of Article II. Among these requirements, declaration of power consumption for on-mode, standby and network standby is still included, which would result in these products not being exempt from testing and energy declaration. We believe that this, in practice, would generate the same level of compliance burden as the actual limits.

Additionally the fact that these products would also be covered by requirements for documentation for recycling at end of life is also not supported by DIGITALEUROPE. The specific design aspects of such products have never been considered in previous studies (with analysis focusing only on consumer displays). Therefore DIGITALEUROPE believes that this is not the time to cover these products with these requirements.

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As matter of principal, DIGITALEUROPE would not object to regulating non-consumer displays, but such should only be addressed within the Ecodesign framework, i.e. with a dedicated study that would consider in detail the specific aspects of each product group.

Information requirements for integrated displays

Integrated Desktop is exempted as Lot 5 (defines 10) recognizes the difficulty to isolate the energy from an integrated display, then subsequently mandates resource efficiency requirements that require energy performance reporting together with other requirements.

In addition under Article 5 of the regulation it repeals Regulation (EC) No 617/2013 point 7.1 (y) "for products with an integrated display containing mercury, the total content of mercury as X,X mg." Electronic displays associated with battery powered devices designed for mobility is brought into scope for resource efficiency reporting which brings Notebooks under the scope of this regulation in addition to 617/2013. The clause 7.1 refers specifically to Desktops, Notebooks and Integrated Desktops.

Regulation (EC) No 617/2013 is entirely effective and any changes should be considered only at the review stage i.e. 2016/17. Including integrated displays in the scope of this regulation covering resource efficiency requirement adds unnecessary confusion and also introduces an additional compliance requirement to yet another vertical regulation. This is easily avoided by removing integrated display entirely from the scope of this regulation and to consider under the revision of Lot 3 regulation in 2 years' time.

Key Issues in ErP Lot 5 regarding treatment of Integrated PC Displays

EC 617/2013 (ErP Lot 3)		EC XXX/201x (ErP Lot 5)		
Product Type/Ref. section	**Content**	**Product Type/Ref. section**	**Content**	**Issue/Comments**
Desktop computers, integrated desktop computer, and notebook computer		**Integrated Desktop displays, Page 2 - Recital 10 & Electronic Displays associated with battery powered devices designed for mobility, Page 2 - Recital 9**	Directive exempts integrated DT displays from regulation, *except from resource-efficiency requirements (see below). Also exempts electronic displays (battery powered) designed for mobility, except from resource efficiency requirements (see below)*	**This is the wrong approach.** Integrated DT displays are part of ErP Lot 3 (but not covered for technical reason). Electronic displays associated with battery powered devices designed for mobility are also part of ErP Lot 3.
Annex II, Section 7.1, sub-section 7.1.1 - 7.1.2	Information to be provided 7.1.1 (a through z)	**Annex II - section 6 Resource Efficiency Requirements**	**6.1 Technical documentation**	**Focus: Integrated Desktop displays & Electronic Displays associated with battery powered devices designed for mobility**
Items (a)-(d)	Basic product information	Item (a)	Identification data	Redundant -- addressed in Lot 3
Items (e)-(k)	E_{TEC} and power mode data	Item (b)	Test parameters	Redundant -- addressed in Lot 3
Items (l)-(m)	Power supply efficiency	Item (C)	On mode	Not applicable - in Lot 3
Items (n)-(o)	Noise level/Battery cycling	item (d)	Standby/Off mode	Redundant -- addressed in Lot 3
items (p)- (x)	Methodology/procedure details	item (e)	Automatic power down	Redundant -- addressed in Lot 3
item y	Integrated display, mercury conte	items (f) - (h)	Networked displays	Not applicable - in Lot 3
item z	Test parameters & set-up details	item (i)	Hazardous content	Mercury already addressed in Lot 3 (see issue below)
		item (j)	Automatic brightness control	Not applicable - in Lot 3
		section 6.2 - 6.3	Other Technical information	Not applicable - in Lot 3
		section 6.4 items (a)- (i)	Public available information	Either redundant or not applicable in Lot 3
		section 6.5	Documentation for recycling and EOL	Not applicable - in Lot 3
Annex II, Section 7.1.1	**Desktop, Integrated Desktop, Notebook computer**	**Article 1, section 3 (f)**	**Regulation does not apply to displays integrated into battery powered products** (NB, Tablets, slates, etc.). **But is in-scope for Resource Efficiency reporting**	**This is partially right/wrong.** This should stay in ErP Lot 3. **Bringing resource efficiency reporting into Erp Lot 5 will make all integrated PC displays in scope. Conflict with Article 1, section 3 (f).**
Annex II, Section 7.1.1	**Desktop, Integrated Desktop, Notebook computer**	**Article 5**	**Amendment to repeal clause** (Annex II, point 7.1 regarding mercury content on PC integrated displays	**This is the wrong approach.** This should stay in ErP Lot 3 for ALL integrated displays in-scope. **Bringing this clause into Erp Lot 5 for resource efficiency reporting makes all integrated PC displays in scope. Will conflict with Article 1, section 3 (f) above.**

3. Unrealistic ambition level for On-mode requirements

DIGITALEUROPE is concerned with the level of ambition of the On-mode requirements set under this regulation. With Ecodesign being a market access condition, such requirements might seriously limit the capacity of certain technologies to come to market in Europe.

While the level of ambition for the initial Tiers might be adjusted for most products, for Tier 2 and specially Tier 3 this looks to be clearly misadjusted with industry expectations for technology development and even the principles of the Ecodesign regulation.

Such is demonstrated in CLASP's discussion paper, which was used as technical support for the current draft. In this study it's clear that the technology efficiency trends analysis did not fully consider limitations in expected developments.

Developments for OLED

While DIGITALEUROPE welcomes the proposed exemption from Tier 1 requirements for OLED and QLED technologies, the requirements set for Tier 2 and Tier 3 could compromise the development for this technologies. Although OLED is quoted in the study as expected to introduce considerable energy efficiency improvements, such is not yet verifiable in the OLED TVs currently on the market, which reach efficiencies of Class A or B only.

Developments for UHD

Equally for Ultra High Definition (UHD) displays[3,] while the study states that there is no need for a special treatment, it is clear that by Tier 1 half of the current UHD technology would not be allowed in the market, with less than 16% complying with Tier 2. Many of the new elements that comprise Phase 2 of UHD (high dynamic range, higher framerate, extended colour) are specifically requested by European Broadcasters a number of which will slow down the energy efficiency improvement of UHDTVs.

DIGITALEUROPE believes UHD shall be addressed as a separate case, as:

- Improving the colour rendering will need to find the proper balance between the light sources efficiency and their primaries colours.
- Having higher frame rate to cope with the reduction of motion artifact needed by better spatial resolution will also need increased processing power.
- Extending the luminance dynamic range (the ratio between the highest luminance and lowest one), to have a better rendering of the reality in a broadcast picture, will impact the achievable peak luminance

All these features are still at R&D level and some companies, including European ones, have already invested a lot in IPR.

This new set of request will almost certainly limit the achievable efficiency improvement, which will reach the asymptote quicker than expected in the CLASP report.

Developments for 8K

Recent developments in displays with resolutions beyond UHD, also known as 8K, have been announced. The panel resolution of these displays is quadruple of current UHD. Due to this significant increase of the panel resolution, backlight needs more power because the area of 1 pixel is scaled-down and transmission factor is worse.

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[3] For the definition of UHD display, DIGITALEUROPE would suggest using the text used in UHD logo license agreement available from the DE website:
http://www.digitaleurope.org/DocumentDownload.aspx?Command=Core_Download&EntryId=808

For example, transmission factor ratio of 55 inch FHD and UHD is roughly 3:2. This means backlight for UHD needs more than 1.5 times power than FHD and 8K needs roughly 2.25 times power than FHD.

DIGITALEUROPE proposes that resolution levels above UHD (i.e. 8K) should be exempted from On-mode requirements and, as indicated in the Article 11 of the Ecodesign draft, be reconsidered in the next revision, in light of technological progress.

Unrealistic improvement scenario

It is also clear that the main argument for the potential technology improvement for power consumption in the CLASP study was the simple comparison of DIGITALEUROPE's 2012 and 2014 datasets. However this analysis should have taken into consideration the technology transition that took place during this period. While in 2012 there could still be a significant share of less efficient display technologies in the market (like CCFL and PDP displays) that was no longer the case in 2014. Hence the 15% efficiency improvement observed then should not be extrapolated as something to be expected in the coming years, since such an equivalent efficiency leap is not expected in the near future.

DIGITALEUROPE would also like to highlight that even considering such an optimistic scenario of 15% improvement over 2 years in power consumption per viewable area, this would still result (as shown in CLASP's study) in more than half of the expected market not to comply with Tier 3 requirements. These unrealistic targets of 33% consumption reduction in Tier 2 and 50% consumption reduction in Tier 3 could in our opinion result in a serious market barrier to the EU market.

Alternative DE proposal for On-mode

For the purpose of simplification, the Power$_{max}$ could be changed by the following single equation:

$$Power_{max} = P_{basic} + k{\times}330{\times}tanh(Area/180)$$

Where:

P$_{basic}$ = 10 Watt for Non-UHD

and

P$_{basic}$ = 16 Watt for UHD

and:

	K		
	Tier 1	Tier 2	Tier 3
Non-UHD	1.00	0.80	0.64
UHD	1.20	1.02	0.87

For non-UHD displays, this would configure a reduction of 20% in consumption over each Tier (even above the above ambitious 15% improvement referenced above), with a similar curve, achieved by a simpler formula.

For UHD displays a correction factor is considered both for P$_{basic}$ to account for the added energy needed for signal processing and for the k factor, to consider the slower energy efficiency improvement rate expected (only 15% improvement), due to the brightness implications of future UHD technology.

This proposal for UHD technology is aligned with the one given in 642/2009 (at the time for FHD).

4. Micro-management through regulation

DIGITALEUROPE would also like to comment on the unnecessary level of detail of certain requirements. The too nitty-gritty focus on certain design aspects, without generating any added value are good examples of excessive regulation.

As an example of this, the new Automatic Power Down requirements, defining how long a user can extend or shorten the delay to power down is, in our view, a completely unnecessary interference in product design, which ultimately will not generate any benefit for user or environment.

Simpler approach as in current regulation should be maintained (defining a single figure for delay to power down as default condition – e.g. 4 hours).

Furthermore, the new Automatic Power Down requirements do not give computer display manufacturers the ability to design an effective power management scheme for displays where there is limited end-user

interaction, like computer displays. Electronic displays without tuners already have an effective power management function as required by EC 1275/2008 in Annex II point 2 (d) and this language should be carried over into the new regulation for displays besides televisions.

Another example of unnecessary level of detail is the Annex on parameters of easily visible an accessible on/off switch. DIGITALEUROPE believes that there is no need to have such a detailed provision in the regulation, when this is clearly dealing with testing methodology, which should be left for the standardization work.

5. Inefficiency End-ofLlife requirements

DIGITALEUROPE cannot support the requirements for end of life (EOL) as set in the current proposal. While the move from absolute limits (like maximum disassembly time or minimum recyclability rate) to information requirements, as proposed by industry, is seen to be a positive development, the logic and extent of this provision is considered to be inappropriate and inefficient. DIGITALEUROPE also notices that the term minimum recyclability rate is still used in the proposed regulations and should be replaced by recyclability rate.

EOL requirements as market access condition

DIGITALEUROPE cannot accept market access level recycling and End-of-Life requirements that are not based on international measurements standards. Without such standards, effective fair and transparent verifiability and enforcement is impossible.

Therefore, DIGITALEUROPE cannot understand the inclusion of Annexes III and IV of the draft Regulation/Consultation Forum Working Document, which address measurement and verification respectively not only for energy efficiency requirements, but also recycling and End-of-Life requirements. In other words, Annexes III and IV transform the information requirements in market access conditions. In light of the absence of measurement methods for this verification (recently confirmed by the non-acceptance of the Commission mandate by CENELEC), DIGITALEUROPE cannot accept the inclusion of such provisions for EOL in Annex III and IV.

Excessive and inefficient administrative burden

Industry recognizes how difficult it is to merge the Ecodesign requirements for televisions and all other electronic displays into one regulation while avoiding loopholes and future-proofing the regulation to the extent appropriate. However, the open-ended scope implied by the phrase "including by not limited to" in point (1) in Article 1 (take from "This Regulation establishes Ecodesign requirements for the placing on the market of electronic displays, including but not limited to:") leads to a regulation that is not transparent and unambiguous and therefore will waste the time and resources of member states, surveillance authorities, and producers as they struggle to interpret the scope throughout the life of the regulation.

The ambiguous 'Status display' definition likewise will waste time and resources as stakeholders struggle to determine if displays integrated into printers, exercise equipment, audio receivers, and coffee makers are in scope of the resource efficiency requirements. It is not transparent or effective to include so many different types of products in a vertical implementing measure intended to cover primarily televisions and computer displays.

The extent of the information requirements for End-of-lLfe is also considered to be excessive, by only creating a considerable administrative burden and not necessarily contributing for improving the recycling of the products.

Such is clear in the requirement for an 'End-of-Life report' to be shared and maintained for 10 years in a freely accessible website. The provision of this information (already foreseen in the WEEE Directive) is only of use for recyclers, therefore should not be kept in public domain. DIGITALEUROPE would point out to the precedent defined in the Vacuum Cleaner Ecodesign regulation, where similar information is only to be shared in a website restricted access to professionals.

Another example of excessive requirement is the video showing dismantling operations. Not only this would impose several logistical constrains for manufacturers; it would result in no advantage for recycling operations. In consultation with recyclers, it was clear that such a video would be of no use or influence in their display recycling operations.

Additionally, the requirement to share the figure for the recyclability index of plastics in the instruction booklet would also be of no added value. Given that the recycler will not receive the instruction booklet with the product, it would be far more relevant for this information to be provided online together with other environmental information (e.g. mercury content), while detailed information should be limited to the End-of-Life report, to be share only with professionals.

Finally, DIGITALEUROPE would also like to contest the inclusion of the requirement for a Brominated Fire retardant logo in the proposal. The indication of presence of these compounds is already foreseen in the plastic marking requirement, therefore adding this additional logo would be of no added value for recycling operations.

Information declaration logic

DIGITALEUROPE believes that a single declaration for EOL information could be valid for different models that share the same design logic (same construction and material use). Although the proposed requirement is stated to be applicable at 'equivalent electronic display model' level, the definition of what would constitute such an equivalent model is too restrictive (same on-mode consumption, same EOL requirements), not allowing for any level of simplification of the declaration.

DIGITALEUROPE proposes that the EOL requirements are set at a product family level, allowing an efficient level of aggregation without compromising the validity of the declaration.

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6. <u>Unrealistic transition period for display products</u>

Meeting the Tier 1 requirements 12 months after publication is unrealistic given current design cycles and manufacturing and transport processes. Specifically manufacturers of computer displays, which are covered for the first time by both Ecodesign and Energy Label regulations, need more time to meet these requirements. A 24 month transition period better takes into account design cycles and manufacturing processes.

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ANNEX – Comments on specific aspects of the Ecodesign and Energy Label drafts

In this Annex DIGITALEUROPE would like to present specific comments to the wording in the Ecodesign (ED) and Energy Label (EL) drafts.

<u>Preamble</u>

ED (9) & EL (7) Text is not consistent with the scope, regarding the implications for battery operated products

ED (10) EL (8) Displays in integrated desktop computers are not covered by Regulation (EU) 617/2013 on computers, but because of the difficulty of isolating their energy use, and in view of a revision of the computers Regulation, shall be exempted from all requirements of this regulation., ~~except from resource-efficiency requirements.~~

Remove the final part sentence referring to "resource-efficiency requirements.

<u>Article 1 - Scope</u>

Scope of ED should be aligned with scope of EL, by stating that regulation requirements should only apply to televisions, computer displays and digital photo frames.

Additionally the following phrase edited as below:

This Regulation establishes Ecodesign requirements for the placing on the market of electronic displays, ~~including but not limited to~~:

Otherwise the phrase implies that additional product categories not defined by the regulation could be in scope. While we understand the Commission's interest in avoiding loopholes and future-proofing the regulation, an open-ended scope leads to regulation that is not transparent and unambiguous and therefore will waste the time and resources of member states, surveillance authorities, and producers as they struggle to interpret the scope throughout the life of the regulation.

Finally the reference to Hospitality Television is seen as unnecessary in the scope.

<u>Article 2 - Definitions</u> (same for ED and EL)

(1) 'Electronic display'

The following phrase must be deleted from the definition of 'electronic display':

Electronic displays include, ~~but are not limited to~~, the following products:

The reasoning for this change is the same as given for the recommended change to Article 1, point 1. An open ended scope is not a hallmark of "better regulation".

(3) 'Digital signage display'

"'Digital signage display' (also known as a 'public display') means an electronic display with a diagonal display screen size greater than 27 inches".

Signage displays smaller than 27 inches are also available on the market and expected to become more common. Consequently, this factor should not be used to define a 'digital signage display'. Any reference to size should be removed in the definition of 'digital signage display'.

"(e) designed for continuous use ('24x7')"

Digital signage displays may also be configured to be used for less than 24 hours per day, e.g. 16 hours per day, according to customer requirements. Therefore the reference to '24x7' time period should be removed and changed to:

(e) designed to be used continuously or for extended periods of time

(5) 'Hospitality Television'

This definition should be removed as it does not serve any purpose with regard to the EL and ED regulations as currently presented and has not been verified on correctness with stakeholders. The Hospitality Television definition seems to be a copy of a US regulation. B-lan, ppv, gna, are all terms that display manufacturers support in the US but that are not used in the EU market although, arguably, the functionality of ppv and gna are covered in the EU as well, but named differently. B-LAN is a proprietary communication protocol from Lodgenet, one of the larger integrators in the US. They are not active on the EU market.

Leaving the Hospitality Television definition in the regulations will cause issues if in the future, the EU decides to do add specific requirements for Hospitality Television or allows for their exemption.'Broadcast displays'

"(c) remote control by wired connection interface (typically BNC) with analogue or digital control signal protocols"

BNC input connectors are typical for broadcast equipment therefore (c) should be changed to:

(c) BNC input connectors for analogue and digital signals equipped with the product.

(8) 'Enhanced performance displays'

Enhanced performance displays are targeted at a specific segment of a global market. Aligning the definition in the ErP lot 5 regulation with that in Energy Star will achieve a level of global harmonization and remove complexity without negatively impacting on the environment. Industry would like to see the additional requirements in the ErP lot 5 definition removed.
As an alternative to removing the additional requirements in the proposed EU definition, the following proposal would be a suitable alternative:
8.(d) a brightness and colour uniformity of >90% across the image change to >75% and
Provide guidance (such as an example test standard) on how to measure colour uniformity ·

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Provide guidance (such as an example test standard) on how to measure colour and brightness stability

(10)'Status display'

This definition must be redefined to clearly not include displays integrated into products with a primary function different from displaying visual information. "Status displays" could be considered to be everything from displays integrated into printers, exercise equipment, audio receivers, and integrated desktop computers, to displays integrated into white goods like coffee makers, dishwashers, refrigerators and ovens.

It is not transparent or effective to include so many different types of products in a vertical implementing measure intended to cover primarily televisions and computer displays. The resource-efficiency requirements proposed for electronic displays (which are stand-alone display products whose primary function is to display images and video) are not technically appropriate for status displays that are embedded in other products, which have vastly different primary purposes. Therefore, the category of status displays must be redefined to not include integrated displays or removed from scope of the resource efficiency requirements in order to ensure transparent, unambiguous, and appropriate regulation.(12)'All-in-one video conference systems'

This definition should be changed as follows:

means dedicated systems for high definition video conferencing and collaboration, integrated within a single enclosure, whose specification shall include all of the following functions and features:
(a)   a user interface, high definition camera(s), display(s), a sound system and processing capabilities for encoding and decoding video and audio
(b)   "networked equipment with high network availability" (HiNA equipment) as defined in Article 2 of Commission Regulation 801/2013.

Article 5 - Amendment to Regulation (EC) No 617/2013 (for ED)

This article should be removed entirely.

Article 13 (for ED) Article 9 (for EL) – Entry into force and application

First requirements of both regulations should only apply 24 (and not 12) months after the entry into force of the regulations.

Annex I:

Definitions:

'Equivalent electronic display' (20) for EL (25) for ED

It should be allowed to make clusters of displays with the same Energy properties and different clusters of displays with the same NER properties. If not, a lot of capacity will be wasted on making different sets of documentation for displays, which are in fact the same with respect to the parameters that are documented.

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DIGITALEUROPE therefore proposes to split the Equivalent display definition in an "Equivalent Energy electronic display definition" and an "Equivalent Resource electronic display definition".

Annex II – Ecodesign requirements

2.1. Power demand in off mode

12 months after the publication of the Regulation in the Official Journal of the European Union:

2.1.1. Power demand of an electronic display in off-mode condition shall not exceed 0,30 W,….

Industry propose the following alternative to allow Display Manufacturers the necessary time to redesign existing products and enable product already on the market to meet the new criteria:

- **24 months** after the publication of the Regulation in the Official Journal of the European Union:
- 2.1.1. Power demand of an electronic display in off-mode condition shall not exceed 0.50 W, ….

2.2.3 Power demand allowances for standby mode

The following power demand allowances should be added-

- reactivation using touchscreen: 0,5W maximum;

- power pass-through to a computer: 1,0W maximum;

2.3 Availability of off mode and/or standby mode

2.3.2. Off mode and/or standby mode, and/or another condition which does not exceed the applicable power demand requirements for off mode and/or standby mode shall be set as default in all electronic displays including in networked electronic displays, when placed on the market.

This should be rephrased as it now states that when powering the display for the first time, it shall enter standby or off mode. This is very confusing for a first-time-user. Generally, displays enter the active mode upon first activation, showing a kind of installation sequence, to help the user to install the display correctly and to get familiar with the display features.

What is meant is probably that the standby state or Off mode shall be entered by default upon deactivation of the display, rather than the Networked Standby mode. See also 2.5.1

2.6 Power demand in a condition providing network standby

Requirements and timelines should be aligned with those set in 801/2013, as follows:

2.6.1 12 months after the publication of the Regulation in the Official Journal of the European Union:

(a)The power demand of electronic display with HiNA functionality, in a condition providing networked standby shall not exceed ~~6.00 W~~ 12.00 W.

(b) The power demand of electronic displays without HiNA functionality in a condition providing networked standby shall not exceed ~~3.00 W~~ 6.00 W.

2.6.2 As of 1 January 2017:

(a)The power demand of electronic display with HiNA functionality, in a condition providing networked standby shall not exceed 8.00 W.

(b) The power demand of electronic displays without HiNA functionality in a condition providing networked standby shall not exceed 3.00 W.

2.6.2 As of 1 January 2019:

(a)The power demand of electronic displays without HiNA functionality in a condition providing networked standby shall not exceed 2,00 W.

3. <u>Automatic Power Down</u>

3.1 Industry strongly recommends that requirement 3.1 apply only to televisions, that is, to electronic displays with tuners. Electronic displays without tuners already have an effective power management function as required by EC 1275/2008 in Annex II point 2 (d).

Industry recognizes the difficulty of merging the automatic power management requirements for televisions and computer displays into this new regulation, given that end-users interact directly with televisions (by using the volume and channel controls for example) but seldom do so with computer displays beyond switching on the device. Industry's preferred approach is to carry over the language from EC 1275/2008 in Annex II point 2 (d) for all electronic displays except televisions, as it allows manufacturers to design an effective power management scheme for displays where there is limited to no end-user interaction.

(a) It should still be allowed to enter the Networked standby mode, next to the standby mode and Off-mode as currently correctly indicated in 801/2013 (article 2, (2).(a).1.(b)

(c) This requirement should be removed entirely.

3.4

This requirement should be removed to accommodate the changes recommended to criterion 3.1. However, if for some reason 3.1 is not changed as recommended to accommodate computer displays, criterion 3.4 should be modified for clarity to read as follows-

> Electronic displays marketed for computer monitoring only and electronic display products with various selectable display sources, shall ~~recognise and prioritise~~ comply with the power management protocols of a host ~~computer~~ device ~~signal source~~ over those power management protocols and features described in point 3.1 when monitoring the host ~~computer~~ device.

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Industry appreciates the intention behind the addition of section 3.4 as it recognizes that end-users interact indirectly with computer displays, and that computer displays already have an effective power management function as required by EC 1275/2008 in Annex II point 2 (d).

However, the term "computer" in section 3.4 must be replaced with "device" in order to recognize the possibility of computer displays being connected to equipment other than computers with power management protocols. Examples of such devices include set-top boxes, blue-ray players, and gaming consoles. When a computer display is connected to one of devices, it should follow the power management instructions from the host device because the device has information necessary (including the time since the last end-user interaction) to decide when it is appropriate to employ an energy management function (which it is required to have as per EC 1275/2008).

Without this chance in wording from "computer" to "device", a computer display would be forced to distinguish between an HDMI signal coming from a computer (which is strictly defined by EC 617/2013) from an HDMI signal coming from another device with a power management feature like a gaming console, and then follow the behaviour outlined in section 3.4 in the former case, and the behaviour outlined in section 3.1 in the latter. This differentiation in signals is technically extremely difficult, if not impossible, and offers no improvement in energy savings. Therefore, we appreciate the Commission making this change to clarify the requirement and to ensure that the requirement makes sense for the product users.

5. Peak luminance ratio

The regulation imposes the existing **peak luminance ratio** for televisions of not less than 65% on Computer Displays without taking into consideration the tolerance variability on panel max brightness of +/- 10% or 20% from typical values. Setting such a target for peak luminance ratio restricts the scope of the panel suppliers and ultimately limits the number of panels available for the EU market.

Industry recommends setting different limits for the peak luminance ratio for televisions and displays. The peak luminance ratio for displays should not be less than 50%

6.1 Technical Documentation:

(a): 'Year of manufacture' is required. But it is not clear to DIGITALEUROPE what this refers to, if the product runs over multiple years. Should this refer to the year of first introduction or is there an update required of the technical documentation every year?

(c) second bullet: the up-scaling note for UHD displays is different than the note in the Energy Label draft. Both shall be aligned.

(e): APD time shall be indicated. But in this description, the condition "networked standby mode" is missing next to Off and Standby.

(g): there is no such requirement. Only the APD time can be added there but this is already required in (e).

6.4 Public available information / Product fiche

Whereas the Ecodesign draft Regulation requires "Public available information" (Annex II.6.4), the Energy Labelling draft Regulation requests a "Product fiche" (Annex V). But the information contents are similar in the two drafts. A single meaning should be more suitable to avoid any confusion, notably vis-a-vis the consumer.

6.5 Documentation for recycling at end of life of displays

(a) Information for the End of life report should be required to be given for every Equivalent Resource electronic display, and should be provided and kept in the technical documentation and a part for professionals of the manufacturer's free access website.

(i)   Exploded diagram should not reference the number of fastenings to allow for clustering into larger groups of 'equivalent electronic displays'.
(ii)   Design strategies are to be described only if they are other than conventional connections that are state of the art (e.g.: screwing, taping, clicking,…)
(iii)   Declaration of the recyclability index of plastic parts should not be declared in the instruction booklet, but this should rather be included in a freely accessible website. The material composition as provided by EN 11469 and EN 1043 should be sufficient to serve the purpose of the requested material composition.

(b) the requirement for the dismantling video should be removed entirely.

Annex III: End of life requirements (ED)

A.   The components targeted for dismantling should be limited to:

•   PCB's larger than 20cm²
•   Display module (either an OLED module, a plasma module or a combination of PMMA and a thin film transistor LCD in case of an LCD module)

B.   An additional exemption condition should be added (considering the smaller weight threshold for the marking):
(iv)   Where marking is not possible due to insufficient surface area

E. The Brominated Fire retardant logo should be removed entirely.

Annex IV for ED Annex IX for EL: Measurements

Measurements for 3D are defined but not used and the remarks on 3D shall therefore be deleted as it serves no purpose.

ABC measurements shall be aligned to those as defined in the Energy Label draft. Reference to deactivation mode of ABC during On-mode measurement should state "if enabled in the default home mode" instead of "if such a function exists".

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The wording minimum should be removed in '6. Minimum recyclability rate index for certain plastic parts' and the following sentence.

<u>Annex V for ED Annex X for EL: Verification procedure</u>

Off mode or Standby power verification procedure are different between ED and EL. Both shall be aligned to the EL description.

Light ratio compliance is different than the ones defined in EL regulation.

points 9 and 10 shall be deleted or reworked as they are using wrong references and are already covered by points 3 and 4.

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DIGITALEUROPE represents the digital technology industry in Europe. Our members include some of the world's largest IT, telecoms and consumer electronics companies and national associations from every part of Europe. DIGITALEUROPE wants European businesses and citizens to benefit fully from digital technologies and for Europe to grow, attract and sustain the world's best digital technology companies.

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