Texte zu den geplanten neuen EU-Regelungen zur umweltgerechten Produktgestaltung und zur Energieverbrauchskennzeichnung in der Beleuchtung – Zusammenstellung * des Umweltbundesamtes (UBA), Deutschland

Entwürfe der EU-Kommission vom 6. November 2015

Stellungnahme des Lichtplanerverbandes IALD ** vom 28. Januar 2016

Hinweis: Bitte beachten Sie, daß der angehängte Text nur in Englisch verfaßt ist.

EN: Information on the coming EU Lighting Regulations – Ecodesign and Energy Labelling – Compilation * of the Federal Environment Agency (UBA), Germany

The EU Commission's drafts of 6 November 2015

Comments by the Lighting Designer Association IALD ** as of 28 January 2016

FR: Informations sur les futures réglementations de l'UE concernant l'éclairage – l'écoconception et l'étiquetage énergétique – Compilation * de l'Agence Fédérale de l'Environnement (UBA), Allemagne

Les projets de la Commission Européenne du 6 novembre 2015

Commentaires de l'association des designers éclairagis IALD ** du 28 Janvier 2016

Indication: Veuillez noter que le présent texte n'est disponible qu'en anglais.

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* http://www.eup-network.de/de/eup-netzwerk-deutschland/offenes-forum-eu-regelungen-beleuchtung/dokumente/texte/

** IALD = International Association of Lighting Designers; http://www.iald.org/

Es folgt ein unveränderter Originaltext.

EN: The following is an unmodified original text.

FR: Ce qui suit est un texte original.

Draft EcoDesign Single Lighting Regulation

Organization:	**Name:**	**Date:**
IALD	NICOLAS FUENTES COLOMER	January 28, 2016

Article / Annexe #	**Section #**	**Page #**	**Topic**	**Comment**	**Proposed change**
Introduction	(16)	4	Review of regulation	Given the rate of technological change and the expected change in metrics, specifically for colour rendition a review is necessary before the implementation of each stage	A review of this Regulation should assess the appropriateness and effectiveness of its provisions in achieving its goals. The timing of review should be sufficient for all provisions to be implemented and show effect on the market. ***As lighting technological developments, standards for methods of measurement and specifically colour assessment are in a period of rapid change, a review shall be undertaken 15 months prior to the implementation date of each stage. The review shall involve a full stakeholder consultation.***
	(18)	4	Application Date	The implementation date for such a radical change is too early for end users to be able to re-equip to replace lighting products for which suitable lamps or light sources will no longer be available. This particularly affects end users with specific and exacting light colour quality requirements such as Museums and Galleries and who have specific controllability requirements such as Theatres and Concert Halls, where not only lamps for fittings would need to be changed, but also control systems and in many cases wiring systems.	The deference of most of this regulation to 18 September 2020 (date to be agreed) gives manufacturers and importers of lighting products and components the necessary legal certainty concerning future requirements, while allowing the old requirements from the Commission Regulations repealed through this act to stay in force until the technological and market development of lighting products and components allows for an economic replacement of these old requirements ***for existing final owners / users, and does not place an onerous requirement on end users to re-equip their buildings and facilities before their existing lighting equipment and systems are life expired.***
Article 1	Subject matter and scope	4	Clarification	Lighting products and lighting product components are by nature multi purpose and the definitions herein refer to application rather than specific	

				product types. While it is understood that this is an attempt in wording to minimise loopholes, these arise not because of a product type but by application. This can be resolved in Lighting Systems regulations so it is essential that both product and systems regulations are enacted simultaneously. We also agree with Lighting Europe that the wording " putting into service" is deleted. This is not clearly defined and is impossible to survey given the market structure for lighting products Meanwhile we propose the following changes to wording to clarify and prevent risks of end users being unable to provide suitable lighting.	
Article 1	Subject matter and scope	4	Clarification	We agree with Lighting Europe that lighting products cannot be and are not designed to operate exclusively in any one condition or for any single or specific application	***Delete "exclusively"***
Article 1	Subject matter and scope	4	Addition	1) One of the exclusions is described under g) electronic displays. As projectors fulfil the same task we consider them as part of this group. To make the regulation clear we propose to add projection to the wording.	***(g) electronic displays and projection equipment***
Article 1	Subject matter and scope	4	Clarification	h) Pieces of art , this caused significant confusion in the consultation group propose change to wording	***(h) Works of Art that have integrated lighting as the subject, material or specific display criteria***

Article 1	Subject matter and scope	4	Addition	Theatre and stage lighting should be excluded from scope since LED lamp replacement opportunities are very limited, at the same time they have neither significant sales volumes nor significant environmental impact nor present a significant potential for improvement.	***(i) Theatre, stage and entertainment lighting***
Article 1	Subject matter and scope	4	Addition	5) The new regulation should not compromise the safety of emergency lighting. To comply with emergency lighting requirements, replacement lamps must be the same as those for which the luminaire was designed. In addition we must absolutely ensure that the independent energy sources used in emergency luminaire are fully charged to cope with emergency situations. This means that power usage in the situation where there is no light should not be restricted. For this or similar applications	***(k) Emergency lighting***
Article 1	Subject matter and scope	4	Addition	Additional requirement to allow a safe living environment for people with a broad range of photosensitive conditions	***For the lighting of the habitation of sufferers of photosensitivity caused by medical conditions***
Article 1	Subject matter and scope	4	Addition	Additional requirement to protect cultural heritage	***For the lighting of items of cultural heritage value specifically to enhance visual access and to protect against degradation***
Article 1	Subject matter and scope	4	Addition	For economic, safety and aesthetical reasons It is important to be able service existing lighting installations. Replacement of spare parts should be allowed	***spare parts or consumable items for lighting product which are identical to original parts or consumables***

Article 2	Colour Rendering	5	Comment	The use of Ra as the definition of lighting colour quality and performance is known to be unreliable particularly for LED light sources. The recently published IES TM30/15 provides a more reliable measure. It is being adopted by high quality LED manufacturers including SORAA, XICATO and CREE and is expected to see high adoption rates. It is very important that the regulation is written in a way that allows change to a new colour metric in the short to medium term, i.e. within 3 to 5 years to avoid risk of the regulation having a reactive effect and reducing lighting quality.	
Article 2	9	5	Definition of 'Lighting product'	The definition proposed, as expressed by a majority of stakeholders, opens the door to several loopholes. The move to LED lighting is changing the approach to power supply and wiring structure and systems. Using "230V" input as a definition excludes many products where the light emitting part is separate from the voltage conversion from 230V AC to whatever range of DC is chosen by the manufacturer. The result is a configuration of "lighting components" that will vary on a project to project basis and individually specified by a broad range of different routes to market. It will therefore be too challenging to provide market surveillance for a "lighting product" effectively made up of many different elements and components from different sources and applied in	Use ***"lighting product component"*** as the sole regulated product for this regulation

				different parts of the “Lighting System”. This definition also opens up opportunities for very low efficiency lighting where the regulated “Lighting Product” is effectively a lamp, and the delivery of light from this via a conventional light fitting can be minimal. This would require users to have a much larger number of “lighting products” to achieve a specific lighting design goal. It specifically disadvantages “lighting products” with integrated LEDs. To achieve best resource use through long product life a fully integrated LED design reduces materials and improves thermal transfer and heat reduction. There is little benefit in removable LED for the majority of luminaire types, as the life of the LED is likely to match or exceed the likely life in use of the luminaire. The definition also causes confusion where a single voltage converter drives a multitude of “Lighting Components” each separately controlled and delivering light for a wide variety of functions over a large floor area.	
Article 3	2	6	Stages	The stages as currently foreseen in the draft regulation will have the effect of forcing tertiary end users to re-equip and possibly rewire and reinstall lighting systems significantly before the end of life. More so in some cases where	***Stage 1, 2020*** ***Stage 2, 2025*** ***Stage 3, 2030***

				changes have already been made to meet the current regulations, before they have achieved a full payback of that investment.	
Article 4	(c)	6	Conformity assessment	The requirement to "specify one realistic combination of product settings and conditions in which the product complies with the legislation" is a probable cause of confusion and opens up potential for avoidance of proper market surveillance. There is need to define "realistic" in such a way as to ensure that the proposed combination is not presented to contravene Article 3. 1. This wording does not provide a resolution for lighting components from different manufacturers brought together to function as a "lighting product".	***Specify the standard operating settings as recommended within the product's installation and operating instructions or marked on the product at which the lighting component in normal use will meet its specified performance and comply with this Regulation***
Article 7	Repeal	7	Consider delay	Repeal of these regulations on the proposed timeline will allow products that do not meet the standards in these regulations to be placed on the market. As the timeline foresees affecting this in 2018, Regulation 244/2009 stage 6 and Regulation 1194/2012 stage 3 will not have been active. In our view making changes to regulations ahead of existing regulation stages disincentives compliance and innovation to achieve performance beyond minimal compliance.	

Article 8	Review	7		Given the rate of technological change and the expected change in metrics, specifically for colour rendition a review is necessary before the implementation of each stage	***As lighting technological developments, standards for methods of measurement and specifically colour assessment are in a period of rapid change a review shall be undertaken 15 months prior to the implementation date of each stage. This review shall involve a full stakeholder consultation.***
Annex 1	Comment	8		Definitions should be gathered in a single place in the document, preferably Article 2 and must use the same for the regulation and annexes. Definitions should be based on those being currently in used in existing relevant standards. Generally we agree with Lighting Europes proposals on definitions particularly where these are aligned to existing European Norms as noted in their comments.	
Annexe 1	1	8		Definition and name of “Lighting Part” requires clarification and coordination with other definitions of regulated products in this Regulation.	
Annexe 1	4	8		“Stabilised flux” needs to be defined according to the different lighting technologies the regulation is seeking to address. LED products can take over 1000 hours before output ceases to rise. Fluorescent lamps are measured after a burn in of 100 hours. Flux will stabilise at different levels depending on the operating temperature of LED and discharge lamps. Flux measurements should therefore refer to existing standards and test methods. Failure to do this will require manufacturers to meet different standards for specification, compliance and regulation.	

Annexe 1	5			"Warm up time" This is currently of little relevance for many lighting technologies. However, should this be considered a necessary factor, the warm up should be to 90% of rated output. As above, stabilised flux if retained must refer to performance of different lighting technologies.	
Annexe 1	7			"Failure Rate" as defined is not sufficiently meaningful particularly in relation to the proposed definitions of "Lighting Product", "Lighting Component" and "Lighting Part." To comply with lighting standards the light emission at end of life determines the use-ability of a lighting product component or part. As many LED products use multiple devices the definition of failure must ensure the device is still meeting is functional requirement.	***'Failure rate' (Fr) means the fractional proportion of products or components which no longer emit the specified flux at end of life, (e.g. for Led 70% of rated lumens, for fluorescent 80% of rated lumens)***
Annexe 11	1.1.1	9	Calculation values	The calculation of permissible energy does not provide sufficient advantage to higher CRI lighting products. For LED products the drop in efficiency between 80CRI and 95 CRI is typically 20%. The formula proposed in the draft paper only represents a 5% efficiency allowance therefore significantly disadvantaging higher colour quality products. On the Malus side the slope of increased efficiency is inadequate to challenge the lower CRI products to be	$P_{ON} = (2 + \frac{\phi}{60lm}) * \frac{CRI}{80}$

				sufficiently more efficient. We propose the following changed formula to address the LED efficiency issues. A T5HO49W/940 fluorescent lamp with initial Lumens of 3450 returns a permissible wattage (Pon) of 46.53 at Stage 2 with the original formula and 50.77 with the revised formula. In comparison the T5H049W/840 with initial Lumens of 4100 returns permissible wattage of 53.25 with either formula. As a result the higher quality linear fluorescent lamp with CRI 90 would be banned from stage 2 with the original formula whereas the equivalent CRI 80 lamp is not. For LED products a further correction factor is required according to CCT. Lower CCT (warmer) appearance always comes at a cost in efficiency. This is brought about because the fundamental light output of LED is at the blue and violet end of the spectrum. To achieve lower colour temperatures of 3000°K and below a much higher proportion of the energy needs to be converted by phosphors to longer wavelengths. This results in significantly higher energy loss in conversion. For the first two stages this will not have a significant impact using the revised formula; however for the third stage a further correction factor will be required to account for the different efficiency of LED at lower CCT.	

				The natural light dispersion characteristic for LED chips is lambertian, roughly a cone of 120° where lighting products require a specific distribution losses are incurred through optics and reflectors to manage the light output of the LED device. The further the required distribution varies from the natural distribution the higher the losses. Where narrow beam angles are required such as retail or museum spotlighting there are increasing losses inversely proportional to the effective beam angle. Many existing narrow beam LED spotlights and reflector lamps are likely to fail Stage 1 without a significant variation from the standard formula. Most high CRI LED spotlight luminaires would currently fail stage 2. A significant impact of this is that an end user re-equiping to meet stage 1 would not be able to add to that stock with the same equipment after stage 2. This will be a significant disincentive to re-equip with more energy efficient equipment until absolutely necessary delaying any positive effect of the regulation.	
Annexe 11	1.1.2	9	Calculation	Comments as above Additional factor required for optical losses	$P_{ON} = (2 + \frac{\phi}{80lm}) * \frac{CRI}{80}$

Annexe 11	1.1.3	9	Calculation	Comments as above Additional factor required for optical losses and lower CCT products	$P_{ON} = (2 + \frac{\phi}{120lm}) * \frac{CRI}{80}$
Annexe 11	1.2 (3)	9	Auxiliary Parts	A lack of clarity as to "off" mode results in confusion. Where light output is dependant on control, power is necessarily consumed when there is zero light output to listen for data signals to switch on or dim up from zero	Delete clause
Annexe 11	Table 1	10	Colour Consistency	The proposed 6 step McAdam Ellipse is not appropriate for LED light sources. As the energy requirements progress by stage the colour consistency needs to improve in line with the abilities of surviving technologies. LED is more than capable of a 2 step McAdam Ellipse for any given CCT or colour point currently. Please see previous IALD comments for further information	***Stage 1; 6 step McAdam Ellipse*** ***Stage 2; 4 step McAdam Ellipse*** ***Stage 3; 2 step McAdam Ellipse***
Annexe 11			Lumen Deterioration	We are concerned that the proposed "Accelerated testing" is not workable and will, if attempted, produce misleading and unreliable results. A lumen depreciation of 1% is not reliably measurable. Typically light measurements cannot be made more than ± 5% accurate with best measurement equipment and techniques. Field measurement is usually acceptable with ±10% accuracy	Lumen depreciation shall be within ±5% of manufacturer's specified lumen depreciation data
Annexe 11			Failure Rate	Again we do not believe the proposed "Accelerated testing" is workable.	Product failure rate in the first year of use shall be less than 1%

Annexe 11			Flicker	Again we do not believe the proposed "Accelerated testing" is workable. Flicker is an important factor for safety and comfortable use. Flicker Factor is still subject to considerable research however it is clear that the impacts are relative to both frequency and modulation. We propose the flicker limitations shall be based on US DoE paper of June 11, 2015 : A Much-Needed Recommended Practice for LED Flicker and should meet these requirements from new throughout life.	Use the following formulas to determine the maximum percent flicker acceptable: ***- At frequencies below 90Hz, maximum percent flicker = frequency x 0.01 [e.g., at 50Hz, the maximum percent flicker is 50 x 0.01 = 0.5%]*** ***- At frequencies between 90Hz and 3000Hz, maximum percent flicker = frequency x 0.0333 [e.g., at 1200Hz, the maximum percent flicker is 1200 x 0.0333 = 40%]*** ***- At frequencies above 3000Hz, no restrictions on the percent flicker. (Note: this is the minimum allowed frequency for basic PWM.)***
Annexe 11	Table 2	11	Auxiliary Parts Power Factor	Power factor. It is inconsistent to have different power factor limits for Lighting Products and auxiliary parts. The effect of power factor comes from drivers and power supplies in all cases	Either: Change power factor requirements in table 1 to 0.9 throughout OR Use existing relationship between wattage of system and power factor as in current regulation
			Failure Rate	Again we do not believe the proposed "Accelerated testing" is workable.	Product failure rate in the first year of use shall be less than 1%
Annexe 11	Section 3.2.1	12	Information displayed on packaging	As full technical information has to be available on a free to access website in 3.3 below. It is essential to provide the URL of that website on the packaging or product	the URL and / or QR code to provide access to manufacturer's technical information Website as required at 3.3 below
Annexe 111	(1)		Quantity of product to be tested	The requirement for 10 products for testing is disproportionate for the many small volume and bespoke lighting products that are typical of lighting schemes designed by professional lighting designers for businesses and residences	***For lighting products or lighting product components made in production volumes (over 500 of each unique type) The Member State authorities shall verify a sample batch of a minimum of 10 lighting products or lighting product components of the same model from the same supplier, where possible obtained in equal proportion from four randomly selected sources***

	2 C		Pass /Fail criteria	Lighting measurements are only accurate to ± 10% therefore a 10% average deviation equals the measurement error and will not reliably determine whether or not there is a non compliance issue with the measured batch	***(c) if, when Member State authorities test the sample batch of the model, more than 80% of the tested batch are within the respective tolerance of 10% for lighting products and lighting parts, and 2.5% for auxiliary parts.***
Annexe 1V			Measurement Methods	We do not believe that the proposed accelerated tests are appropriate to the products subject to this regulation. Testing of LED products should be in accordance with existing industry practice. This does take a long time and is onerous on testing authorities however any other regime is unreliable and will require products to be designed to the testing regime rather than for normal operation.	
	1		Temperature cycling	Half the rated life time and a maximum of 1000 hours is not compatible given the majority of LED products have rated life between 25,0000 hours and 50,0000 hours.	***(1) A temperature cycling test: the duration of this test is half the model's rated life-time. The temperature is varied from -10°C to +40°C over 4h periods. A 4h period consists of 1h holding time at each end temperature and 1h transfer time with a rate of temperature change of 1°C/min until the end temperature is reached. During the test the model is switched on for 34min and off for 34min.***
	2		High temperature test	This proposed test is impractical and unlikely to deliver reliable results. Many high quality LED products have integral temperature control that cannot be defeated. These devices are among the highest quality and highest efficiency this being delivered by operating at close to maximum output hence the	*1.* Delete high temperature test

				requirement for temperature monitoring and control. In addition the effects of operating LED systems for a proportionately short length of time at elevated temperature will tend to reduce the total operating life of the lighting product rather than cause a measurable difference in performance at the end of the test.	
	3		Switching Test	The switching test should conform with industry standard tests	
Annexe V	1		Benchmarks Energy Efficiency	We disagree that any lighting product on the market is achieving 200Lm/W. Currently lamp replacement lighting products are achieving 110Lm/W and dedicated LED luminaires 130 Lm/W. These are the true Best Available Technology Values.	***The most efficient lighting products on the market have an energy efficiency of 130lm/W.***