

Texte zu EU-Regelungen zur umweltgerechten Produktgestaltung und zur Energieverbrauchskennzeichnung in der Beleuchtung – Zusammenstellung<sup>[1]</sup> des Umweltbundesamtes (UBA), Deutschland



## Diskussion über künftige Änderungsverordnungen (Produktgestaltung und -information)

Diskussionstext der EU-Kommission vom 10. Juni 2020:  
**Stellungnahme des Unterhaltungssektors (ALD, DTHG, IALD,  
OETHG, Pearle, PLASA, SLF, STEPP, VPLT)<sup>[2]</sup>**  
**vom 29. Juni 2020**

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

**EN:** Information on EU Lighting Regulations – Ecodesign and Energy Labelling – Compilation<sup>[1]</sup> of the Federal Environment Agency (UBA), Germany

Discussion of future amending regulations  
(Product Design and Product Information)

**The EU Commission’s discussion text as of 10 June 2020:  
Comments of the Entertainment sector (ALD, DTHG, IALD, OETHG,  
Pearle, PLASA, SLF, STEPP, VPLT)<sup>[2]</sup> as of 29 June 2020**

**FR:** Informations sur réglementations de l'UE concernant l'éclairage – l'écoconception et l'étiquetage énergétique – Compilation<sup>[1]</sup> de l'Agence Fédérale de l'Environnement (UBA), Allemagne

Discussion sur les futurs règlements modificatifs  
(Conception des produits et informations relatives aux produits)

**Texte de discussion de la Commission européenne du 10 juin 2020 :  
Commentaires du secteur du divertissement (ALD, DTHG, IALD,  
OETHG, Pearle, PLASA, SLF, STEPP, VPLT)<sup>[2]</sup> du 29 juin 2020**

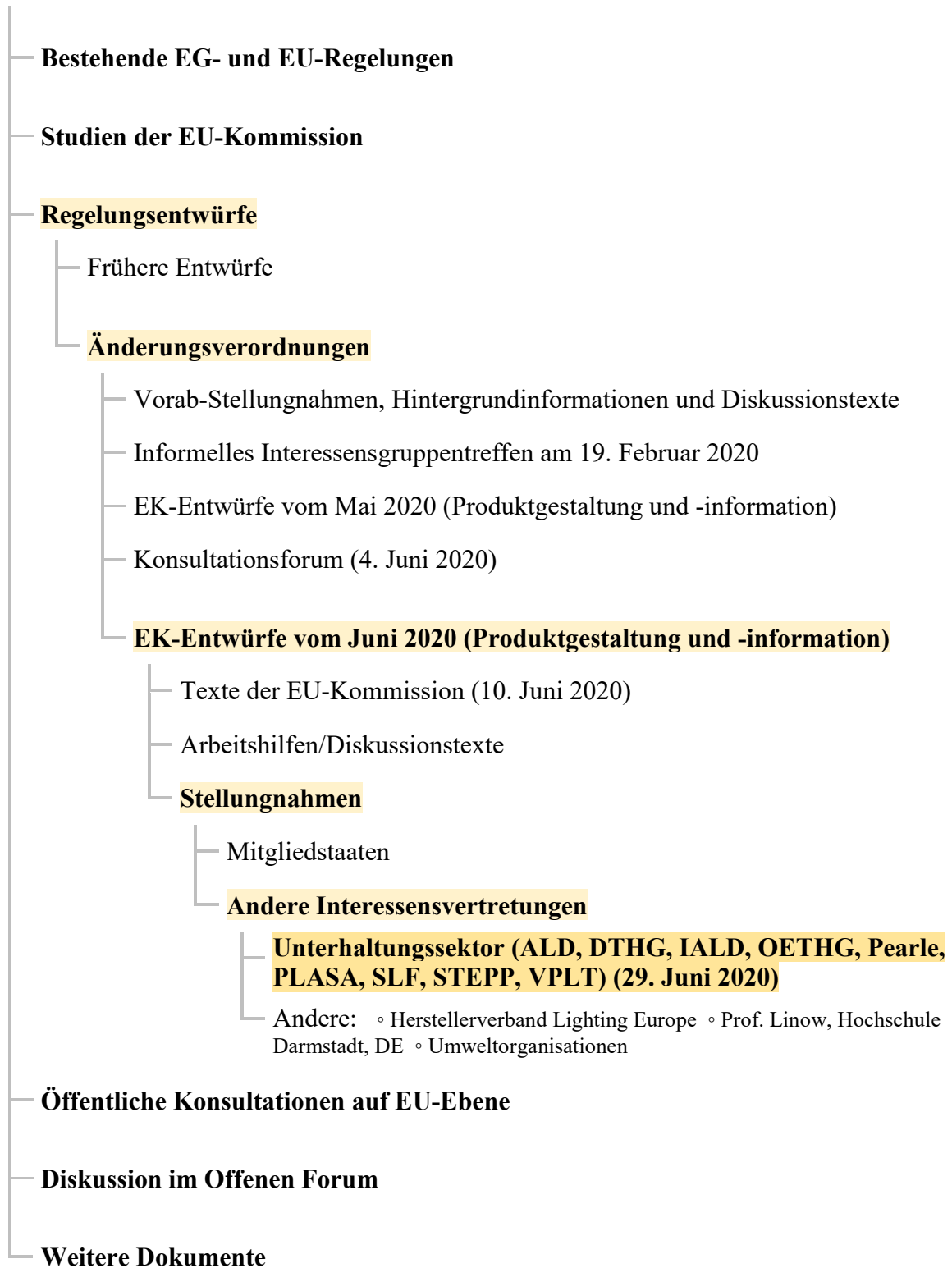
*Indication : Veuillez noter que le présent texte n'est disponible qu'en anglais.*

<sup>[1]</sup> <https://www.eup-network.de/de/eup-netzwerk-deutschland/offenes-forum-eu-regelungen-beleuchtung/dokumente/texte/>

<sup>[2]</sup> [www.ald.org.uk](http://www.ald.org.uk) | [www.dthg.de](http://www.dthg.de) | [www.iald.org](http://www.iald.org) | [www.oethg.at](http://www.oethg.at) | [www.pearle.eu](http://www.pearle.eu) | [www.plasa.org](http://www.plasa.org) | [www.svenska-ljus.se](http://www.svenska-ljus.se) | [www.stepp.be](http://www.stepp.be) | [www.vplt.org](http://www.vplt.org)

Texte im Offenen Forum

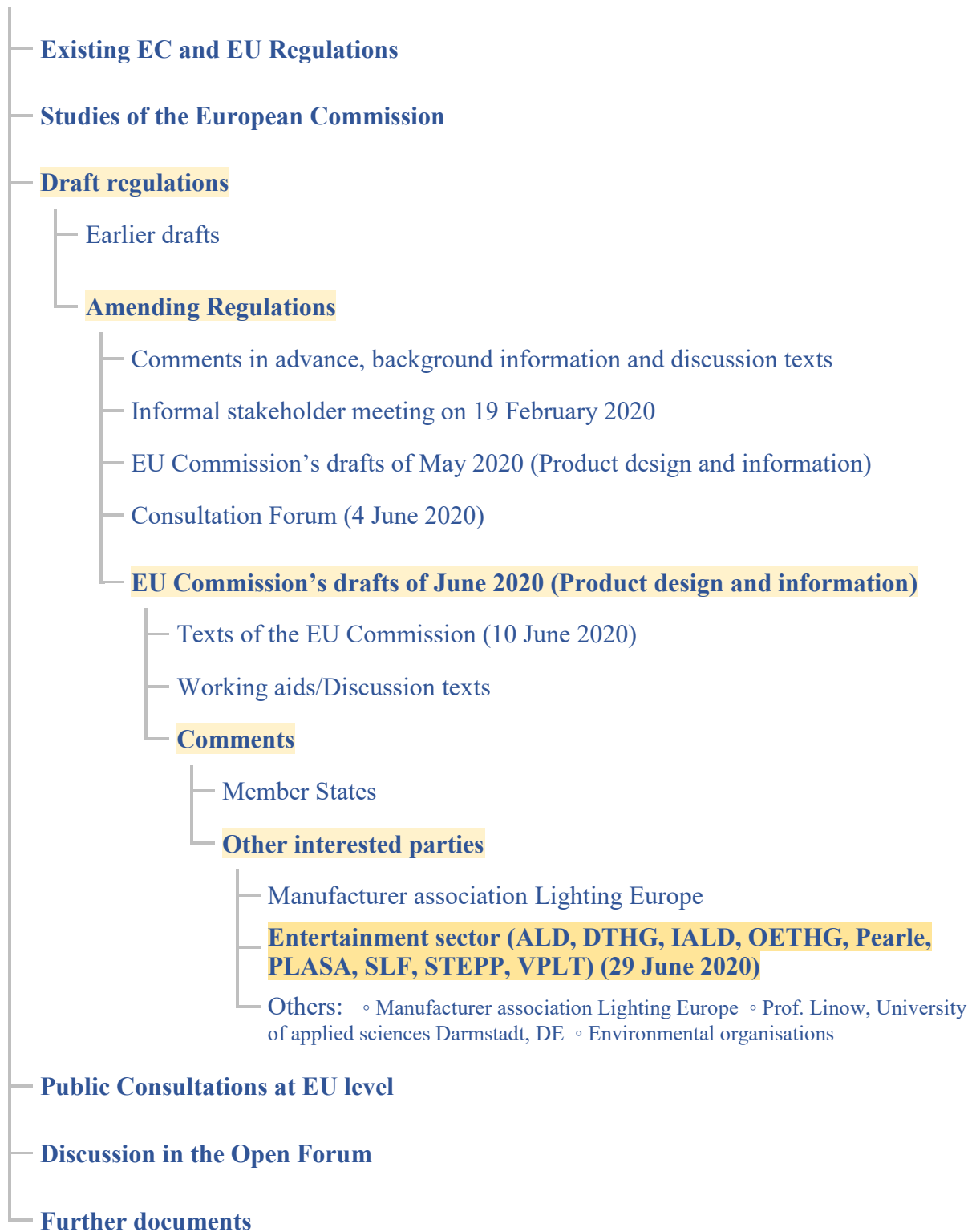
(abc = vorliegender Text)



Abkürzungen: ● EG = Europäische Gemeinschaft ● EK = EU-Kommission ● EU = Europäische Union

**Documents in the Open Forum**

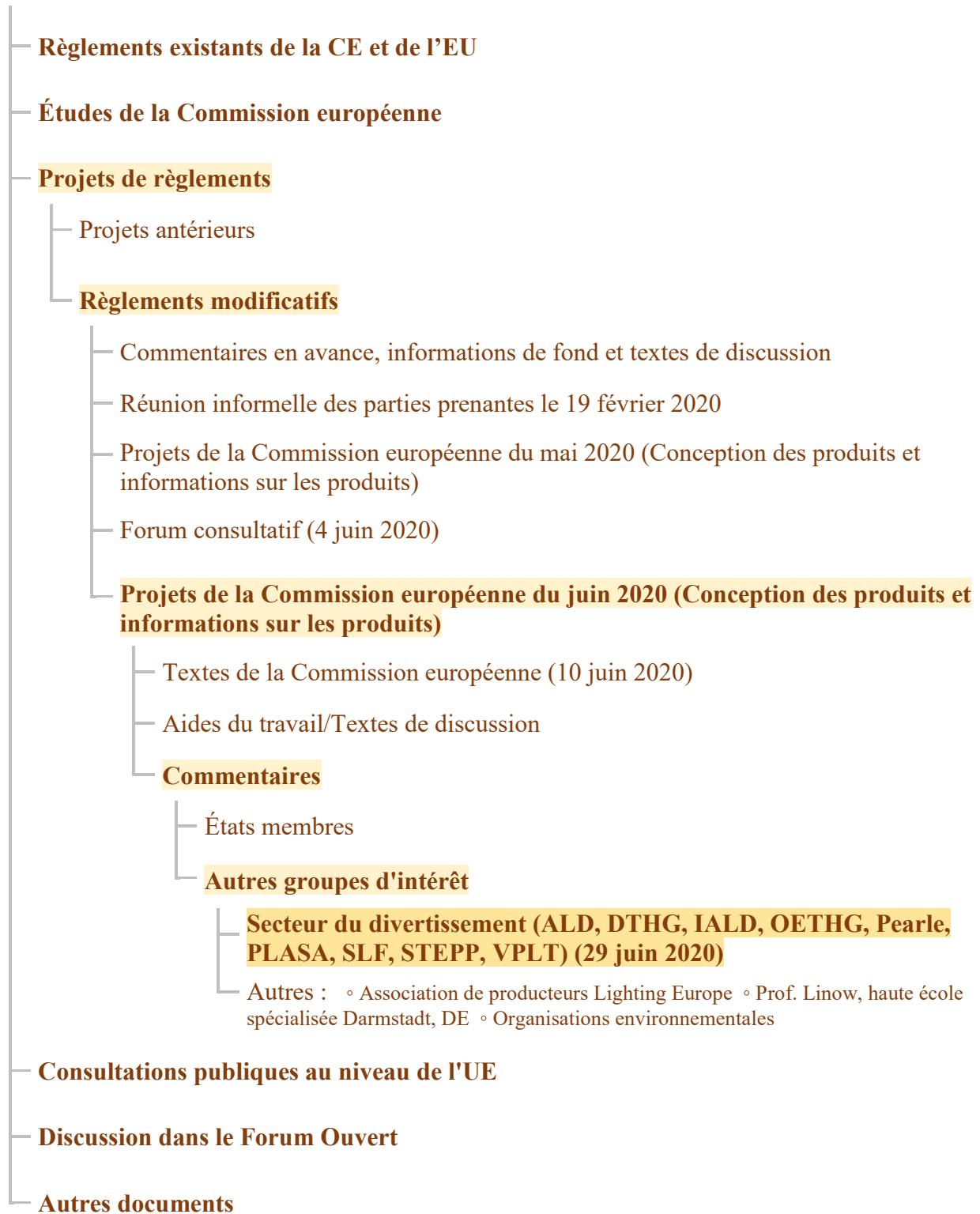
(**abc** = text at hand)



Abbreviations: ● EC = European Communities ● EU = European Union

## Documents dans le forum ouvert

(abc = présent document)



Abréviations : ● CE = Communauté européenne ● UE = Union européenne

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Es folgt ein unveränderter Originaltext.

**EN:** The following is an unmodified original text.

**FR:** Ce qui suit est un texte original.

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**Contribution of the European Entertainment Ecodesign Coalition to the proposed amendment of Annex III.3 point (w), introduced by the Commission in the working paper preparing the meeting of the Ecodesign And Energy Labelling Consultation Forum on 4 June 2020**

Commission Regulation on ecodesign, repealing Commission Regulation (EU)  
1194/2012

Brussels, 29 June 2020  
P7747

**1. Introduction**

The aim being to maximise energy savings and close loopholes in current legislation, the reviewed ecodesign regulation has replaced general sector exemptions for special purpose lights used in theatres, concert halls, live venues and film studios by exemptions based on technical characteristics.

As pointed out in our proposal for amendment in July 2019, **regrettably, the published regulation contains an inconsistent article in Annex III.3 point (w) parts 1 and 2.** This bears risks at the legal level as it would lead to heterogenous implementation of the text in the Member States and at the technical level as manufacturers might choose not to produce certain types of light sources anymore.

Point (w) deals with the use of very high output light sources and is essential as it allows for the full functioning of professional lighting in our sectors. High output LED sources are a key component and are used in the following contexts:

- Theatre lighting
- Television
- Film lighting
- Concerts and live entertainment
- Photography

**We therefore welcome the proposed amendment by the Commission on Annex III.3 point (w).** It takes into account the needs on stage and in film studios, as high output LED sources cannot be replaced by alternative technologies for the time being.

Having analysed the Commission proposal thoroughly, we would like to further discuss the value of 180W introduced in w (2) a) and e) as this value could have repercussions for currently used entertainment technology and the future development of more efficient light sources.

**We wish to propose a revised value of 100W.**

## **2. Towards sustainable lighting: LED sources contribute to energy savings**

LED sources are recognised as the way forward to reduce energy consumption. For the time being, there are no replacements of these specific LED sources on the market.

However, due to technical and physical effects, high output LED sources used for stage and studio lighting are unable to meet the efficacy requirements set out in the revised ecodesign regulation.

It has to be underlined that **even if those types of LED sources fall short of efficacy requirements, they still perform far more efficiently than any alternative light source of any other technology and are the only realistic way to substitute a discharge source in professional entertainment luminaires.**

The sustainable path and future in the entertainment technology therefore depends on the use of LED sources. With the aim to deliver for the **European Green Deal**, it is essential to leave enough room for future research and innovation in the area of stage and studio lighting and not hinder the development of more efficient light sources by introducing thresholds which do not allow for our sector to become more resource efficient.

## **3. Key points: Why do we need to amend point w (2) a) and e) to specify 100W in place of 180W**

- Very concentrated small light sources cannot meet the efficiency requirements due to their size and the LED technology available today and for the foreseeable future. This is a different situation than for general-purpose lighting where the size of the light source may be larger.
- At powers of a 100W or less, it is technically possible to solve cooling issues and/or to use more efficient, larger general-purpose LED light sources.
- The dominant application for professional spotlights is in the range of 500W-1000W tungsten. Many of these could potentially be replaced with LED equivalents in a power range of 100W-200W. This is where our sector can make the highest improvements of efficiency and energy reduction.
- Application of a 180W power limit will discourage development of more efficient spotlight light sources.

## **4. Rationale for an exemption power limit of 100W for items a) and e) in w (2)**

This section of exemptions arises because LED light sources used in high power professional entertainment luminaires cannot meet the efficacy, on-power and standby power requirements of the SLR.

These light sources are extremely small for their power and this results in several technical necessities for their satisfactory operation.



Light sources to drive an optical system for beam shaping and sharp focus at high intensity and long throws, such as in a theatre auditorium, are required to be as small as possible to minimize losses due to the mismatch of étendue of the light source and the optical train aperture. Ideally the light source should be a singular point.

The regulations are predicated on large, high étendue LEDs used for domestic and industrial area lighting. Those products can easily achieve the efficacies required. However, for focusable high brightness stage and television lighting applications we need much lower étendue and higher emittances.

The LED devices currently available and expected to be available in the next few years with sufficient étendue and emittance cannot reach the required efficacy, so there is no chance for a light source, no matter the number of LEDs or the overall power, to comply. LEDs of very high emittance are indeed quite small, but many LEDs are required to obtain sufficient flux for projection of a strong enough beam of light, similar to that produced by a tungsten or arc source.

In a typical real light source for focusable high brightness applications LEDs are usually arrayed with tens of even hundreds of dies packed together in close proximity. The dense packing results in high operating temperatures and elaborate, expensive and bulky cooling systems. These LEDs are driven at the highest possible current and consequently suffer from the 'Auger effect' whereby some of the light generation is diminished by the high operating current density, and it is further diminished by the LED device's thermal derating.

In wash lights a similar situation arises. Here the light source is also required to be small but practically speaking cannot be small enough to resemble the tungsten or arc source it replaces due to the need to place it and all its cooling apparatus inside a volume previously occupied by a simple tungsten lamp. Again, useable light is lost and in order to obtain enough light LED dies and COB LEDs must be driven to their maximum output, which is their least efficient operating state.

In both these cases the LED solutions, albeit not as efficient as required by the regulation, are greatly more efficient than the sources they replace.

An example is the ETC Source4WRD, datasheet link below. This light source consumes ~150W and replaces a tungsten source of 750W. It has an unusual radiation pattern, that is neither non-directional nor directional as defined in the regulation. The emission is more like a ring or torus of light with no forward and no rear emission. It is specifically designed for use with a collecting reflector. The L factor table (end loss) does not offer a compensation to account for this. The solid angle of radiation is in the order of less than 2 pi steradians, but the regulation does not offer a compensation for that. As a consequence, this light source, which is the most efficient theatrical projection LED light source ever designed, using state-of-the art materials and seven-figure development costs, cannot meet the regulation for efficacy nor for on-power. Failure to allow the use of this source in the EU will result in its use in North America and elsewhere while EU markets would have to continue to use tungsten or arc equivalents, both of which would be allowed due to other exemptions.

This is one example from one manufacturer, many others can be provided.

The newest text proposal appears to have copied the value of 180W from item c) to items a) and e).

That value of 180W was claimed originally by our group as a real example for a light source of the type in part c) i.e. a source with integrated non-removeable optics arranged to direct light to an area smaller than the light emitting surface, and is the lowest powered device of that type currently on the market.

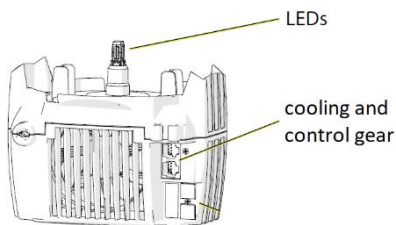
We contend that the 180W value in parts a) and e) is too high and not based on a real situation. **In order to ensure that the professional entertainment sector is able to continue to develop the most efficient sources based on LEDs the value in parts a) and e) needs to be reduced to 100W or even less.** We further contend that this will still protect the regulation from loophole abuse as 100W is substantially higher than the power of LED sources used in all common mass-market lighting products.

As may now be apparent from the above, the limit of 180W in items a) and e) will actually serve to impede development of more efficient and lower-power professional entertainment luminaires.

We also note that this exemption is prefaced with a description of the terms of the exemption, to apply to professional entertainment lighting purposes which should offer additional loophole protection.

ETC Source4WRD light source:  
[https://www.etconnect.com/Products/Lighting-Fixtures/S4WRD/Features.aspx?utm\\_campaign=Profile](https://www.etconnect.com/Products/Lighting-Fixtures/S4WRD/Features.aspx?utm_campaign=Profile)

### **5. Examples for Annex III, 3. (w) light source with power $\geq$ 100 W**



Ad (a) CRI > 90: LED Retrofit unit for Profile Spotlight (149W)



© Robert Juliat - Dalis  
Ad (e) asymmetrical footlight (130W)

## **6. Commission proposal for amendment with comment of the European Entertainment Ecodesign Coalition**

### ***Annex III Exemptions***

3. Any light source or separate control gear within the scope of this Regulation shall be exempt from the requirements of this Regulation, with the exception of the information requirements set out in point 3(e) of Annex II, if they are specifically designed and marketed for their intended use in at least one of the following applications:

<b>Commission regulation, published on 7 February 2019</b>	<b>Commission proposal for amendment</b>	<b>European Entertainment Ecodesign coalition proposal</b>
<p>(w) white light sources which</p> <p>(1) are designed and marketed specifically for scene-lighting use in film-studios, TV-studios and locations, and photographic-studios and locations, or for stage-lighting use in theatres, during concerts or other entertainment events; and which:</p> <p>(2) provide two or more of the following specifications:</p> <p>(a) LED with high CRI &gt; 90;</p> <p>(b) GES/E40, K39d socket with changeable Colour Temperature down to 1800 K (undimmed), used with low voltage power supply;</p> <p>(c) LED rated at 180W and greater and arranged to direct output to an area smaller than the light emitting surface;</p> <p>(d) DWE lamp type which is a tungsten lamp defined by its wattage (650 W) voltage (120 V) and terminal type (pressure screw terminal);</p> <p>(e) white bi-colour LED sources;</p> <p>(f) fluorescent tubes: Min BI Pin T5 and Bi Pin T12 with CRI ≥ 85 and CCT 2 900, 3 000, 3 200, 5 600 or 6 500 K.</p>	<p>(w) light sources that</p> <p>(1) are designed and marketed specifically for scene-lighting use in film-studios, TV-studios and locations, and photographic-studios and locations, or for stage-lighting use in theatres, during concerts or other entertainment events;</p> <p>and that</p> <p>(2) meet <b>at least one</b> of the following specifications:</p> <p>(a) LED <b>with power ≥ 180 W</b> and CRI &gt; 90;</p> <p>(b) GES/E40, K39d socket with changeable Colour Temperature down to 1 800 K (undimmed), used with low voltage power supply;</p> <p>(c) LED <b>with power ≥ 180 W</b> and arranged to direct output to an area smaller than the light emitting surface;</p> <p>(d) <b>Incandescent light source</b> that is DWE type and has 650 W power, 120 V voltage and pressure screw terminal;</p> <p>(e) LED <b>with power ≥ 180 W</b> that allows the user to set different correlated colour</p>	<p>(w) light sources that</p> <p>(1) are designed and marketed specifically for scene-lighting use in film-studios, TV-studios and locations, and photographic-studios and locations, or for stage-lighting use in theatres, during concerts or other entertainment events;</p> <p>and that</p> <p>(2) meet <b>at least one</b> of the following specifications:</p> <p>(a) LED <b>with power ≥ 100 W</b> and CRI &gt; 90;</p> <p>(b) GES/E40, K39d socket with changeable Colour Temperature down to 1 800 K (undimmed), used with low voltage power supply;</p> <p>(c) LED <b>with power ≥ 180 W</b> and arranged to direct output to an area smaller than the light emitting surface;</p> <p>(d) <b>Incandescent light source</b> that is DWE type and has 650 W power, 120 V voltage and pressure screw terminal;</p> <p>(e) <b>LED with power ≥ 100 W</b> that allows the user to set different correlated colour temperatures for the emitted light;</p>

	temperatures for the emitted light; (f) LFL T5 with G5 cap and LFL T12 with G13 cap, with CRI $\geq$ 85 and CCT 2 900, 3 000, 3 200, 5 600 or 6 500 K.	(f) LFL T5 with G5 cap and LFL T12 with G13 cap, with CRI $\geq$ 85 and CCT 2 900, 3 000, 3 200, 5 600 or 6 500 K.
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Thank you for considering the concerns of our sectors. We remain at your disposal for any further questions.

The **European Entertainment Ecodesign Coalition** is a European-wide group of associations working in the entertainment, lighting design, live performance and film/TV sectors:

Pearle\* – Live Performance Europe [www.pearle.eu](http://www.pearle.eu)

IALD – International Association of Lighting Designers [www.iald.org](http://www.iald.org)

PLASA – The Professional Lighting and Sound Association [www.plasa.org](http://www.plasa.org)

VPLT – The German Entertainment Technology Association [www.vplt.org](http://www.vplt.org)

ALD – The Association of Lighting Designers [www.ald.org.uk](http://www.ald.org.uk)

DTHG – German Theatre Technical Society [www.dthg.de](http://www.dthg.de)

OETHG – The Austrian Theatre Technology Association [www.oethg.at](http://www.oethg.at)

SLF – The Association of Swedish Lighting Designers [www.svenska-ljus.se/english/](http://www.svenska-ljus.se/english/)

STEPP – The professional association of producers, designers and technicians of the arts and event sector in Belgium [www.stepp.be](http://www.stepp.be)

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