

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



## Diskussion über eine künftige Änderungsverordnung (Produktgestaltung)

### Anhang II Nummer 2 – SVM-Höchstwert: **Stellungnahme des Herstellerverbandes LE <sup>[2]</sup>** **vom 26. Mai 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 a future amending regulation (Product Design)

### **Annex II.2 – SVM limit value: Comments by the Industry Association LE <sup>[2]</sup> as of 26 May 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 d'un futur règlement modificatif (Conception des produit)

### **Annexe II, point 2 – Valeur maximale du SVM : Commentaires de l'association de producteurs LE <sup>[2]</sup> de 26 mai 2020**

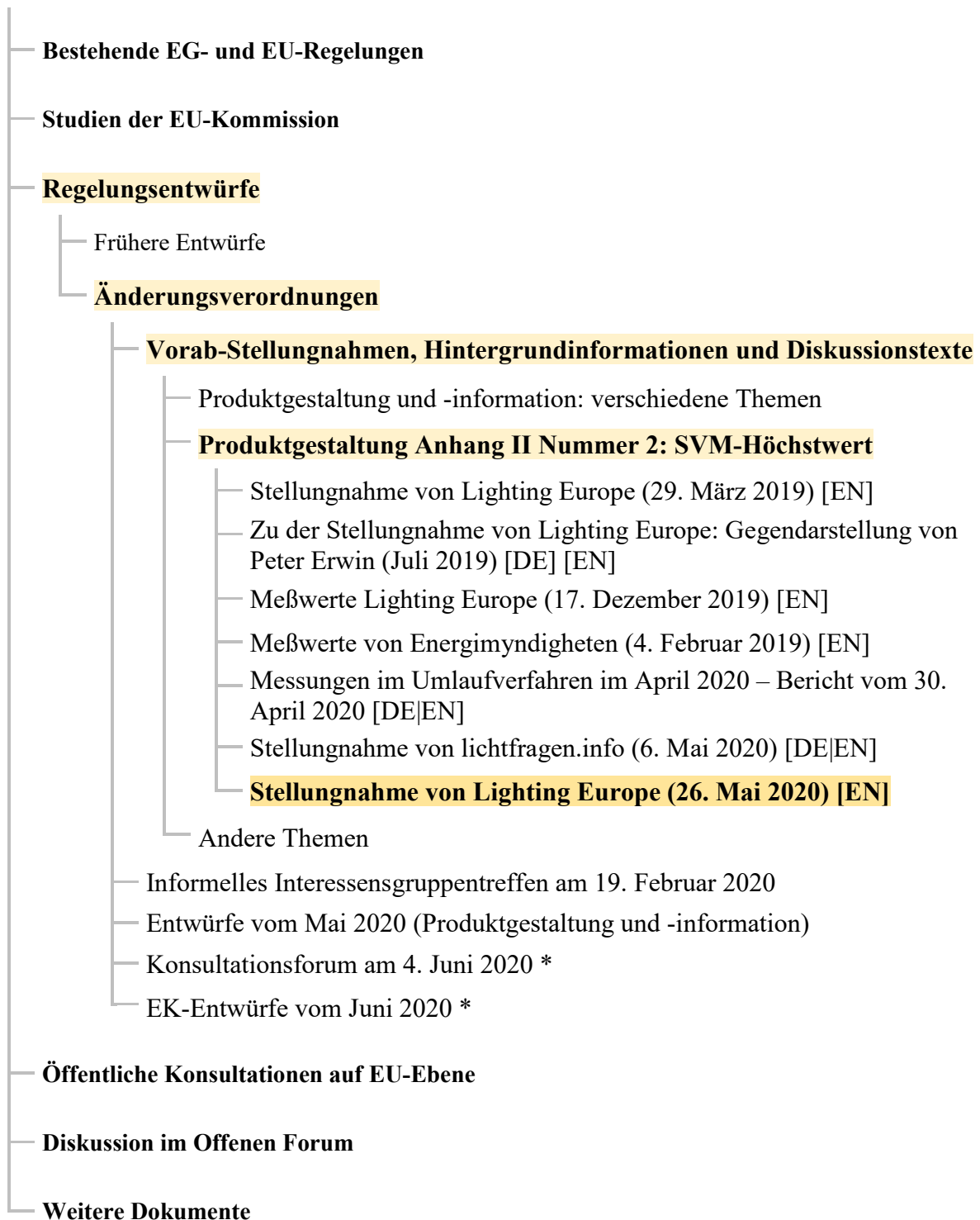
*Indication : Veuillez noter que le présent texte n'est disponible qu'en anglais.*

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

<sup>[2]</sup> LE = Lighting Europe; <http://www.lightingeurope.org/>

Texte im Offenen Forum

(abc = vorliegender Text)



\* Stand 6. Juni 2020: Diese Texte stehen noch nicht zur Verfügung.

**Documents in the Open Forum**

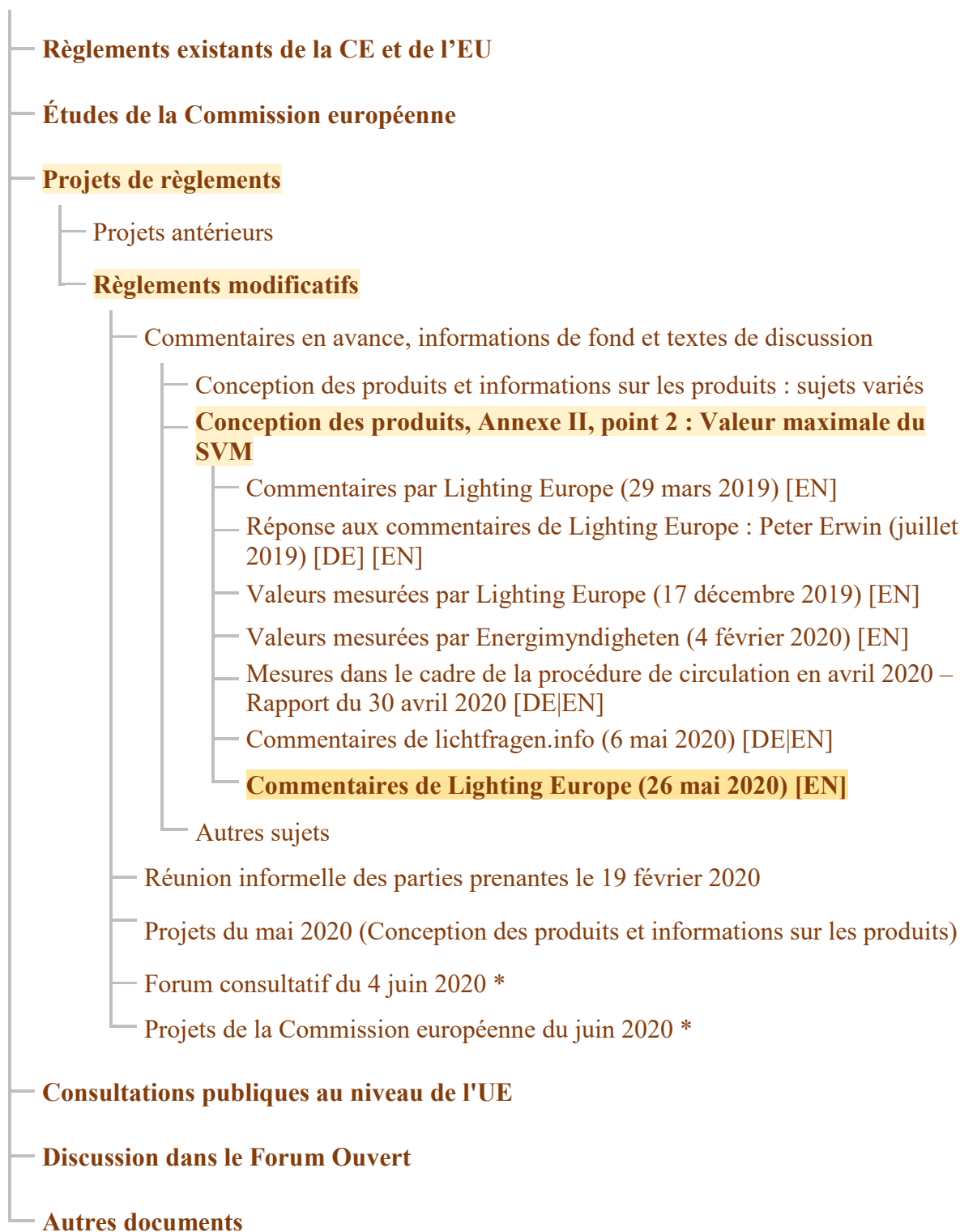
(abc = text at hand)



\* Status as of 6 June 2020: This text is not yet available.

## Documents dans le forum ouvert

(abc = présent document)



\* État au 6 juin 2020 : Ce texte n'est pas encore disponible.

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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# Recommendations based on conclusions of the SVM Round- Robin Test

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# Recommendation to revise SVM requirement

## **Current status EU Ecodesign**

SVM  $\leq$  0.4 for all LED MLS

No Exemptions

## **LightingEurope Revision Proposals**

Based on the outcomes of the SVM Round-Robin Test (RRT), LightingEurope recommends that the SVM requirement is revised with:

- A 3-stage approach towards SVM requirement  $\leq$ 1.0
- Exemptions per stage to ensure access to LED retrofit technologies for users

We further recommend that the measurement tolerance for SVM is changed from a percentage to an absolute measurement value.



# Revised SVM requirement

**Step 1 September 2021**






**SVM ≤ 1.6  
Exemption List 1**

**Step 2 March 2023**

**SVM ≤ 1.3  
Exemption List 2**

**Step 3 September 2024**

**SVM ≤ 1.0  
Exemption List 3**

Socket *	Exemptions Step 1	Exemptions Step 2	Exemptions Step 3
G9/R7s 	Exempted: All full glass	Exempted: All full glass SVM ≤ 1.6: All non-glass dimmable	Exempted: All full glass: SVM ≤ 1.6: All non-glass dimmable SVM ≤ 1.3: All non-glass non-dimmable
G5/G23/GX23/2G7/ 2G10/2G11/2GX13 /G10q 	-	SVM ≤ 1.6: All	SVM ≤ 1.6: All
GU10 	-	-	SVM ≤ 1.3: All GU10 dimmable
E10/E11/E12/E14/E17 /B15 ** 	-	SVM ≤ 1.6: All full glass dimmable	SVM ≤ 1.6: All full glass dimmable SVM ≤ 1.3: All full glass non-dimmable
E26/E27/B22 ** 	-	-	SVM ≤ 1.3: All full glass dimmable

\*) Only sockets for products intended for exemptions are listed. For all other sockets full SVM requirements apply.

\*\*\*) E11, E12, E17, and E26 are not used in Europe, but they belong to the same product category and should therefore be included (as other regions may copy-paste EU legislation).

## Justification: revised SVM requirement

The round-robin test (RRT) showed that:

- Many products will need to be redesigned to satisfy a lower SVM limit. Until this redesign is completed, exemptions are needed to ensure users find the products they need.
- This is a new measurement – market surveillance labs will be on a learning curve and will have trouble making reliable and consistent measurements (max deviation of 0.64 on SVM measurement during RRT).
- Harmonics requirement that applies as of March 2022 will also require additional product redesign. Most lamps in the RRT satisfy either lower SVM or new harmonics requirement.
- 2 recent studies in offices showed people had no complaints at SVM ~1.3

## RRT overall Pass/Fail depends on harmonics and SVM

- The overall Pass / Fail on both SVM and harmonics outcome varies between labs
- The lamps < 5 W are not subject to the new harmonics requirements that will apply in the near future (1 March 2022)  
>> this makes it easier to comply with the SVM requirement and creates a risk if in the future products < 5 W also need to fulfill the harmonics requirements
- The failing of lamps is either due to SVM or to the harmonics requirement – in either case the electronics need to be redesigned and there is a clear trade-off and balancing between the two
- Failing can also be a result of high deviations among measurement devices/procedures used in the various labs - max deviation of 0.64 found in SVM

# Conclusions on SVM measurement

- The SVM measurement between Labs A, B and C is highly consistent
- Inconsistency with Lab D when comparing with labs A and B; sometimes aligned, sometimes large differences, high uncertainty (8/25 Pass, 14/25 Fail, 3/25 no data)
- Big differences with Lab D on SVM – the maximum deviation of 0.64 (far above proposed SVM limit of 0.4 and allowed tolerances of 10 % of limit)
- With very low values for SVM (and also  $P_{st}^{LM}$ ) there is a problem with tolerance limits (measured vs the declared value) in percentage as opposed to absolute values – tab 2 of the excel file with the SVM RRT results contains a comparison of deviations when compared to declared values

# Conclusion on harmonics measurement



- The harmonics measurement between Lab A and B is reasonably consistent: 23/25 match, 2/25 differences (P8, L2)
- Lab C can only perform one of three options (option 3) of the harmonics measurements
- Lab D available results are consistent with Lab A and B
- Both Labs C and D have no capability inhouse to measure all 3 harmonics options and must rely on an external partner to check and confirm non-compliant products

# Background: harmonics requirements for mains voltage light sources



The standard used to test lighting equipment is EN 61000-3-2

- Such standard is regularly updated, with new/modified requirements.
- In the past no tests were required for lighting equipment with an active input power of  $\leq 25$  W.
- With the 2014 edition, new requirements for lighting equipment below 25 W have been introduced.
- In the last edition published in 2018, more details have been introduced in the standard to test lighting equipment below 25 W.
- From June 2017 the previous standard listed in the OJ (edition 2009) has been removed and does not provide the “presumption of conformity” to essential requirements of EMC Directive anymore, so products shall comply with more stringent requirements.
- The new edition of the standard published in 2018 provides more detailed requirements for lighting equipment below 25 W.

# Impact: harmonics requirements for mains voltage light sources

The new possible SVM requirements would result in the following:

- A solution to comply with SVM requirements could be the addition of a capacitor (with a suitable capacity).
- The introduction of capacitors to comply with SVM requirements (in order to get a ripple reduction) would cause problems to comply with the EN 61000-3-2 requirements.
- The problem will be more significant for light source of small dimensions and/or for which the capacitor required would cause an increase in the lamp dimensions/a reduction of the emitting area (with lower light emission).
- The capacitor shall be used in a suitable ambient temperature (so the use of light source/lamp in a luminaire could imply a reduction of the lamp power to add the capacitor).

# Conclusions on other measurements

- The traditional measures wattage, lumen, CRI, and CCT contain some deviations in measurement, but these are mostly within the tolerances.
- The lamps pass on the other criteria.
- This could result in a follow-up action for the labs to compare measurement set-ups after this RRT.



# Conclusions Round-Robin Test

- The 4 participating labs demonstrated great cooperation and managed to navigate the additional complexities of the COVID-19 crisis.
- This RRT only included 25 lamps – it did not cover all the thousands of products that are in scope of the Ecodesign LED / OLED MLS requirements for SVM.
- RRT demonstrates that most products above 5 W do not comply with both SVM and harmonics requirements.
- The incandescent products P10 and L6 – well-known to the market – both fail on SVM: 1.26 (25 W GLS) and 1.12 (20 W PAR halogen).

## **Main challenges in the SVM RRT:**

- Above or below 5 W: Lamps < 5 W comply more easily with SVM because they do not have to satisfy the new harmonics requirement; Lamps > 5 W do not comply with 0.4 limit
- Full-glass: More difficult for full-glass lamps to achieve low SVM
- Size: G9, R7s and E14 have difficulties to achieve SVM limits because of their small size

In addition, the (cap up) lamp position leads in some cases, like for E27 lamps, to additional problems with heating in certain parts that are needed to comply with SVM.

NB: TLED5 not included in RRT due to breakage risk, so cannot draw any conclusions from this RRT.

# Conclusions per lamp type

Based on the outcomes of the RRT, the impact of a tiered approach towards  $SMV \leq 1.0$  is:

- Lamps below 5 W comply more easily with SVM because they do not have to satisfy the new harmonics requirement
- E27: redesigns seems needed to meet both harmonics and SVM. Longer term, no additional exemption is needed.
- E14: lower wattages ( $< 5$  W) do not have to meet harmonics today and are passing more easily on SVM. The RRT did not provide lamps  $> 5$  W with passing, both for SVM and harmonics. Therefore, exemptions will be required for E14.
- GU10: these samples are compliant. No additional exemption is needed.
- G9: all G9 are below 5 W. The non full-glass G9 (P7, H3, H4, SEA4 and SEA5) are able to reach low SVM. L4 is full glass and does not meet the SVM requirement. Apparent need for exemption for full-glass G9 (allow  $SVM \leq 1.6$  for full-glass G9).
- R7s: all R7s are above 5 W. All R7s have difficulty to achieve low SVM (allow  $SVM \leq 1.6$  for full-glass R7s).
- G5: TLED5 was agreed upfront not to be tested due to high breakage risks during transport.

# Conclusions & recommendations on SVM measurement capabilities

- With very low values for SVM (and also  $P_{st}^{LM}$ ) there is a problem with tolerance limits (measured vs the declared value) in percentage as opposed to absolute values.
- LightingEurope members have the measurement capabilities and the expertise to ensure their products comply with the new requirements.
- Further investment in measurement capabilities is needed to ensure market surveillance authorities can correctly and effectively enforce the new requirements as of 1 September 2021.
- EU can support national authorities to prepare for this new requirement – e.g., as part of EEPLiant-style projects to invest in equipment and run RRTs across national testing labs.

**This investment is needed to ensure compliance and a level playing field.**

LightingEurope is available to support laboratories create the right measurement set-up and procedures..



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# THANK YOU

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