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 der Firma Soraa ** vom 15. 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 Company Soraa ** as of 15 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 la société Soraa ** du 15 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/

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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.

SORAA
Simply Perfect.™

Dr. Ruben Kubiak
Policy Officer
European Commission
Directorate-General for Energy
Energy Efficiency Unit

Fremont, January 25th, 2015

SUBJECT: Comments to the Ecodesign Consultation Forum.

Dear Dr. Kubiak,

It is with great appreciation for the European Commission's efforts to increase the adoption of efficient lighting technologies, that we offer our comments to the proposed Ecodesign Consultation Forum.

Yours sincerely,

Aurelien David
Sr. Principal Scientist

PREAMBLE

Soraa is a manufacturer of high-quality LED lamps. We strongly believe that high quality is important for market adoption in some applications. Soraa has many clients, including some large companies, which only transitioned to LEDs because products with very high color rendering were available. In fields such as retails and museums, there is a stringent need to directional lamps having good beam quality and good color rendition.

In this context, it is important to realize that there is a balance between efficacy and aspects of product quality. These aspects include color rendering (CRI, but also other measures like R9 and whiteness rendering); driver quality (flicker); beam quality (for directional products); form-factor (ANSI-compliant) etc… In general, it is more difficult to achieve a very high efficiency while also maintaining the quality of these various aspects. However, it is not reasonable to expect that a regulation would specifically take all of these tradeoffs into account, as this would make for very complex rules. Therefore, it is important that efficiency regulations not be overly stringent: rather it should leave some flexibility to manufacturers, in order to design optimal products in terms of efficiency/quality tradeoff.

ECODESIGN

We would like to provide comments on the five points below.

1. Efficiency and CRI: The EcoDesign proposal takes into account the fundamental trade-off between color rendering and efficiency. This trade-off can be called “fundamental” because high color rendering is achieved by adding red wavelengths to the emitted light, which always reduces the efficiency. Taking this effect into account is a good thing, as it enables manufacturers to offer high-quality products at a modest cost in efficiency.

However, in the current proposal, this trade-off is not well evaluated. It is three to four times weaker than it should be according to physical laws. Therefore in practice, high-color quality products are at a significant disadvantage.

We suggest that the efficiency formulas should be revised to accurately account for the trade-off. More specifically, the fundamental drop in efficiency between CRI 80 and 95 is about 20% lm/W. In contrast, the formulas of Annex II, section 1.1 amount to only considering an efficiency drop of 5% lm/W. **These formulas should be changed as follows to properly quantify the effect of CRI:**

(CRI+240)/320 → CRI/80

This change would not modify the required efficiency for CRI 80 products, but would apply an accurate correction for high-CRI products.

2. Directional vs. non-directional: The proposal sets a unique limit for all form factors of light sources, and does not take into account the difference between directional and non-directional lamps.

In fact, it is more challenging to design an efficient directional source (such as a PAR or MR lamp) than an omnidirectional source. This is due to the need for directional optics, and to the need for high-brightness sources which tend to be less efficient.

We suggest that the proposal should be revised to create different categories for directional and non-directional sources. **We propose an efficiency derating of 10% for directional sources.** This would allow high-quality directional lamps to be designed.

3. Lumen deterioration: The proposed test for lumen deterioration (Annex II, Section 2.1) is problematic. First, the proposed limit value of 1% is extremely low and at the limit of what can even be measured by state-of-the art metrology; it is not a realistic limit for industrial purposes. Second, the proposed test protocol is not standard, does not apply well to LED technology, and has never been vetted. Rather, **this should use a well-recognized test procedure**. There are several globally recognized test procedures, such as IES LM-79 ad TM-28.

4. Flicker: In Annex II, Section 2.1, the proposed value for flicker index appears extremely low. 1% is lower than some incandescent lamps! We wonder if this is a typo; a value of 10% is quite good and would make more sense.

5. Power factor: In Annex II, Section 2.1, the Power Factor of 0.9 is unnecessarily high. A value of 0.8 would appear more reasonable for domestic applications.

ECOLABEL

The minimum value for category F is incredibly demanding. Moreover, the efficiency limit is the same for all products; it does not take into account the efficiency cost of designing a product with high CRI or a directional product.

According to the latest Energy Star database, which records tens of thousands of existing LED products, **every** existing directional warm-white high-CRI lamp (above 90) would be in category G! Thus the proposed limit for class G makes no difference between inefficient technologies such as halogen, and high-CRI LED bulbs which can be four times more efficient.

In the same database, not a single warm-white retrofit lamp actually exceeds 120lm/W (see figure below). Thus the best existing products would be confined to category E.

The proposed limit for class A is 210 lm/W. This is not a feasible value in practical applications: it is only achieved at very low current in some LED components (e.g. discounting the efficiency loss in the driver and the optics) having a low CRI and a high CCT. Real-world consumer requirements are: high current operation, CRI>80, warm-white; besides, driver and optic losses should be considered.

The limits of the Ecolabel table should be revised to be more representative of what is actually feasible. They should take into account CRI (just like Ecodesign does), and should differentiate between directional and non-directional lamps. The class A value should have some connection to the best currently-available products.

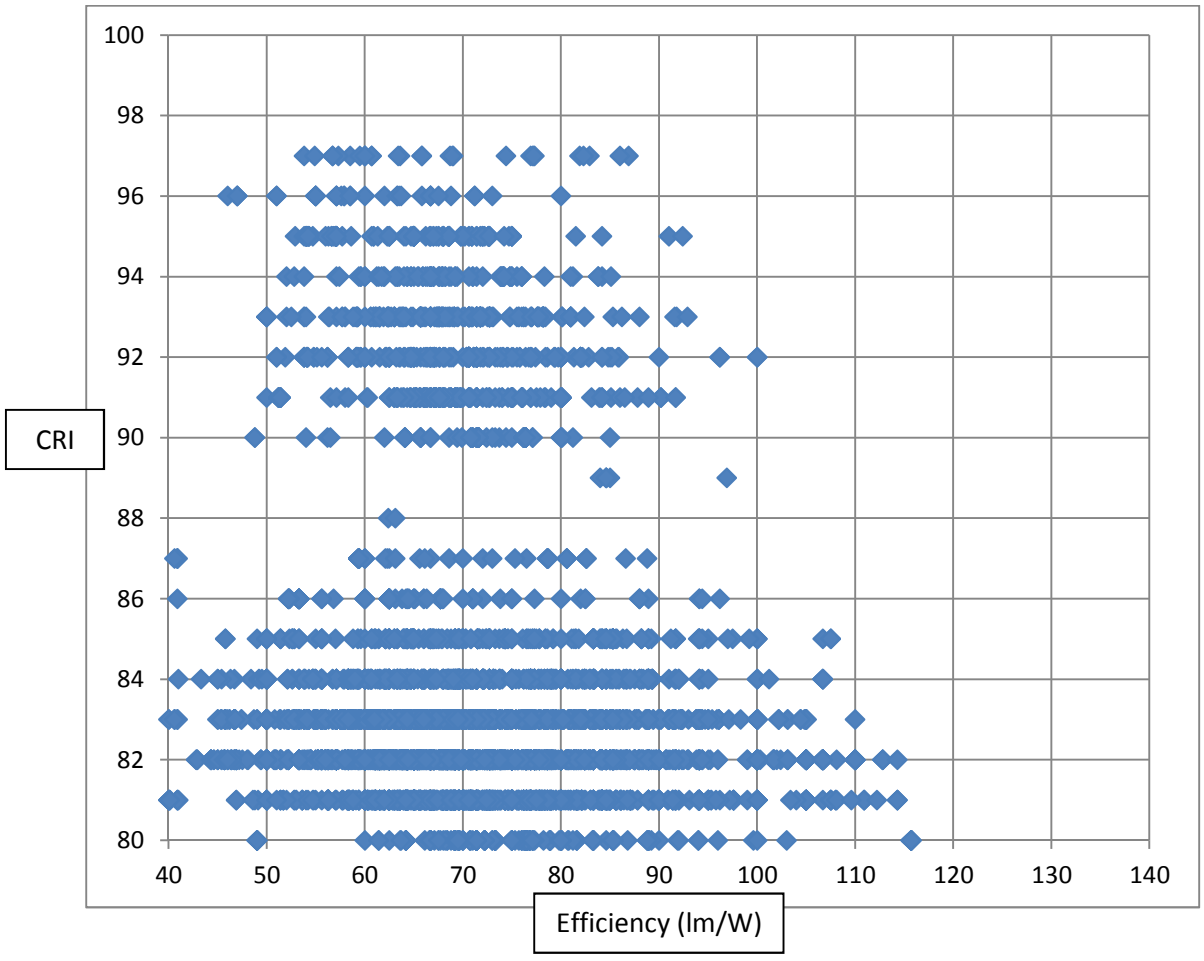

Figure 1: Energy star data for available retrofit warm-white (CCT=2700-3000K) LED lamps