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Germany's position on the working documents regarding the review of the ecodesign and energy labelling regulations for lighting products (244/2009, 245/2009, 1194/2012 and 874/2012)

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General remarks

We appreciate the intention of the Commission to unify the existing ecodesign regulations and to revise the regulation concerning the energy labelling. We also support the aim to simplify handling for manufacturers and market surveillance authorities. We appreciate the proposal of the Commission to simplify the label and not to have a label for luminaires any more.

In our present statement, we will provide comments on both the draft for ecodesign and for energy labelling.

Because of the high power consumption of lighting, there is the need for effective policies. Here, ecodesign and energy labelling can be useful elements. In our opinion, requirements should be always such that they are enforceable and that their implementation leads to real energy savings.

In the following, we will comment on the main aspects of both the draft of the ecodesign regulation and the energy labelling regulation as well as on editorial aspects of the two drafts.

Comments on main aspects of the draft of the ecodesign regulation

In the following we will be using the term ILED = Inorganic LED, in contrast to OLED = Organic LED.

1. Scope and exemptions (Article 1 & Annex I):

At this moment in time we consider the following additions and changes to the exemptions to be necessary. Because of the complexity of the lighting regulation as well as the large and diverse scope of application, we will continue to examine this topic even after the deadline for written contributions. If necessary we will provide additional comments at a later stage.

1st

Additional exemptions should be provided:

- for customized small series production, e.g. less than 200 products per year. We ask the Commission to check if a limit of 200 products per year could be used for circumvention. If so the limit would need to be reduced further. This exemption is

necessary for lighting used in art projects, craft lighting products or special lighting projects. In such small production series, even the need to provide enough samples for market surveillance authorities would be an unfair burden compared to the little energy savings that could be reached.

- for theatre and studio lighting. These products only have a minor share in the overall energy consumption but fulfil special needs not covered by more efficient lighting products. The wording of the related exemption could read as follows:
"2 (h) Halogen lamps which fulfil at least one of the following conditions:
 - one of the following socket types: GX6.35, GY9.5, G9.5, G22, GY16, G38, 2PIN, PGJX50
 - luminous efficacy $\geq 24 \text{ lm/W}$."

Remark: The requirement on luminous efficacy refers to R7s lamps, used for studio lighting. In comparison to R7s lamps for general lighting, studio lamps are boosted with two consequences: higher lumen output –and thus higher luminous efficacy– and reduced lifetime (< 300 h instead of 2 000 h).

- for non-HID light sources with specific effective ultraviolet power $> 2 \text{ mW/klm}$. The reason is that some of low-pressure mercury lamps, used for sun tanning, have chromaticity coordinates x and y within the scope. The same applies for lamps used for disinfection of air in air-conditioning systems and of water. Thus Annex I, point 2b) should read
"2 (b) ~~HID~~ Light sources with specific effective ultraviolet power $> 2 \text{ mW/klm}$;"
- for lamps with special spectra, used for terraria.
- for photometric calibration lamps accompanied by an individual calibration certificate detailing the exact radiometric flux under specified conditions.
- for light sources, used as standard illuminants (e.g. D50, D65, TL84). We ask the Commission to verify that exemptions for these standard illuminants cannot be used as a loophole for energy inefficient general purpose lighting. Those light sources are used in industry and service for the evaluation of coloured surfaces and materials under standard viewing conditions. Due to the special construction of the product testing boxes they cannot be simply replaced by ILED light sources.

2nd

We would like to ask the Commission whether a number of special purpose lamps are covered by the proposed exemptions:

- Are lights for horticulture and pest control precluded from the scope due to the limitations on white light? If not, is there need for an additional exemption?
- Does the exemption for image capture and image projection (Annex I, 3.b) cover lithography lamps? If not, is there need for an additional exemption?

3rd

We also would like to provide some comments regarding the **proposed exemptions**:

- Article 2, (1)(b) refers to the „projected light-emitting surface area“: this parameter is not measurable for market surveillance. We propose to exempt applications with higher luminous flux per mm² by explicit naming.
- The second point in the remark regarding “specifically tested and approved” in Annex I includes the expression “a test report or other documentation”. We propose to delete “other documentation” in order to avoid loopholes.
- We also ask to clarify that a test report should always be provided to market surveillance upon request.
- Information should be given in any case also on the packaging (not only *possibly* as written in the third point under “specifically tested and approved”).

4th

We think that (transitional) exemptions are necessary for **T 26 mm LFL**

We do not agree with the statement in the explanatory notes that suitable LED replacements are already available for all applications of T 26 mm LFL (T8/8 inch). Problems can occur

- in high ambient temperature
 - heat input from the surrounding due to high ambient temperature, e.g. to be found in the following industrial applications: Process heat, drying processes and heat treatment e.g. in power stations, metal processing (melting and recasting), glass industry, paper factory, painting facilities and chemical industry;
- in chemically aggressive atmospheres
 - Damage caused by substances in the ambient atmosphere; examples: butyric acid, chlorine compounds, hydrocarbons, ammoniac, sulphur (compounds), acids, bases, crude oil derivatives and see air. Such atmospheres can be found in the following sectors: food trade, sewage treatment plants, water treatment plants, galvanizing plants, composting plants, waste incineration, chemical industry, paper factory, biogas plants, animal breeding and animal farming.
 - Damage caused by substances arising from the ILED* product, which should escape, but cannot due to the design of the ILED luminaire. This may occur if the ILED is sealed off from the environment in order to preserve the ILED from injuries from the surrounding or preserve the surrounding from injuries from

the ILED (explosion-protected luminaires) Examples: mining, petro chemistry, silo plants, agriculture and bakeries.

- in applications that require overvoltage protection.
 - Examples: platforms of railway stations and similar. Upgrading of overvoltage protection in street lighting with old pylons is expensive.

We have not been able to identify any standards or certification that could differentiate lamps for these special applications from lamps for general purpose lighting. We nevertheless ask the Commission to think about an exemption that addresses the problems of these businesses until an LED alternative is commercially viable. If suitable standards exist or could be set, the following should apply:

In Annex II, table 1, values for η and L are set at the status quo level for T 26 mm LFL but applies only for those lamps specifically tested and approved to operate

- in high ambient temperature or
- in chemically aggressive atmospheres or
- in applications that require overvoltage protection.

It needs to be clearly stated on the packaging that these lamps are exempt for professional use only, intended for application in these areas, where an equivalent LED replacement is not available. The values for all other T 26 mm LFL can be left at the level proposed.

In addition, operators of professional lighting applications, especially in the field of street lighting, office lighting or railway lighting, expect practical and economic problems if scope and exemptions will be laid down as proposed:

- Problems of guarantee when putting a retrofit in an existing luminaire.
- The light distribution is often not the same.
- Retrofits often do not have the same lumen range as the lamps they replace.
- The two previous points can influence the safety at work, on railway station platforms etc.
- ILED retrofits are typically heavier and some sockets of luminaires are not designed for additional weight.
- Furthermore, lamp holders are designed for other electrical stress than the one which can occur when the luminaire is operated with a retrofit lamp.
- Problems with retrofit regarding glare and flicker.
- Replacing some light sources with retrofits requires re-measuring and re-assessing the entire lighting concept. In some cases, a complete rework might be necessary ahead of the renovation schedule. This creates not only a significant

financial burden, but also might not always be feasible from a planning and execution perspective.

Switching from T 26 mm to T 16 mm (T5/8 inch) leads mostly to the same problems as with retrofit lamps. Furthermore, adapters are required which contain electronics and which have a lack of overvoltage protection. Finally, T 16 mm light sources are designed for higher ambient temperatures, therefore at low ambient temperatures under outdoor condition, they do not deliver the same luminous flux. If scope, exemptions and timing will be laid down as proposed, we expect large operators would pre-purchase these goods in bulk to cover many years to come.

To address these concerns, we propose a **temporary exemption for three years** after the entry into force **for procurement of T 26 mm LFL by tender** in motivated exceptional cases. Hence, the call for tender needs to clarify why LED retrofits cannot be used for technical or economic reasons. In addition, the energy efficiency of the offers needs to be considered. The exception should also be available to private companies, as long as the tender process follows the requirements for public procurement. This creates a higher administrative burden for small companies. Therefore such an exemption should also include some facilitations offered by public procurement law to address the needs and capabilities of these enterprises. Such facilitations could include a restricted call for tenders for smaller batches. These facilitations should, however, not cover direct purchases. We expect that the burden of a public tender would only be used by institutional consumers such as public authorities, infrastructure operators and large companies as well as SMEs for which no LED-alternatives are available. It would take T 26mm LFL from the mass market but leave time to adapt for operators which bear a higher burden. It would also give them the time to replace the whole lighting system by a smart and effective alternative instead of switching to retrofit solutions. This requirement should be addressed in the review.

This could for example be implemented with the following addition to Annex III 1.1: „The requirements for FL T 26 mm shall not apply before xx.xx.2023, if these are sold in response to a public tender.“

The proposed duration for this temporary exemption is dependent on a revision no later than 1 September 2022. This revision needs to address the impact of this and other exemptions.

To further address these concerns, we propose to remove the obstacles for the switching to LED until the review:

- Standardization of exchangeable ILED modules.
- Requirement that ILED modules and control gears are exchangeable apart from some exemptions.

- Limits for flicker and stroboscopic effects.
- Reliable information concerning lifetime.

2. Definitions (Article 2 & Annex II):

We have the following comments concerning the definitions:

1st

Concerning the definitions for *light sources*, *separate control gears* and *containing products* we see a number of uncertainties which can lead to confusion and misunderstanding. Some examples:

- Definition for *light sources*
 - The wording could open a loophole: In case a luminaire contains a fixed ILED module plus e.g. a tiny G9 LED, this lamp could count as "the smallest physical unit...".
 - Furthermore, the sentence "If a containing product is itself a light source..." is ambiguous. An ILED luminaire e.g. is a containing product but it could be that the module cannot be readily removed from it.
- Definition for *separate control gears* is ambiguous.
 - On the one hand it is said that a separate control gear is not physically integrated and
 - on the other hand control gears which are placed on the market as part of a containing product are included in this definition.
- Definition for *containing products*
 - A lamp consisting of an integrated light source and an integrated control gear would count as a containing product. Following Article 4, the integrated light source, i.e. the small ILED module, needs to be removable. That is certainly not intended.

What the wording should make clear from our point of view is the following:

- The ecodesign requirements should be met by lamps *, modules and control gears when they are placed on the market as separate products or as part of luminaires *, furniture or the like.
- Removability should aim at lamps, modules and control gears, integrated in luminaires *, furniture and other products.
- In case that a product contains lamps* and/or modules and/or luminaires * and/or control gears which cannot be readily removed without permanent

mechanical damage, the “remaining” product needs to meet the requirements. Examples: i) In case of a luminaire with a fixed ILED module, the entire luminaire has to meet the requirements. ii) In case of a luminaire with a readily removable lamp and additionally a fixed ILED module, the luminaire needs to meet the requirements after the lamp has been removed (for measurement purposes).

[* in the traditional sense]

We propose to make a clearer differentiation between terms with a more general meaning, like light source or control gear and terms used for those products which should meet the requirements on the other side. 2nd, We therefore propose the following: *light source* is used as term with a more general meaning and *light source_{REG}* as term to describe light sources and similar products which need to meet the requirements. Please note: The term ‘light source_{REG}’ which is used in that sense, is just used as a placeholder for a better term to be found.

Light source and control gear could be defined as proposed in Article 2 (1) and (2) of the draft regulation, *light source_{REG}* and *control gear_{REG}* as follows:

<p>‘light source_{REG}’ is a product that is either</p> <ul style="list-style-type: none"> - a light source that is placed on the market as a separate product or - a light sources that is placed on the market as part of a containing product, from which it can be readily removed without permanent mechanical damage or - a containing product in the following state: all light sources, which could have been readily removed without permanent mechanical damage, are removed, but there is still at least one light source contained, that cannot be readily removed. 	<p>‘control gear_{REG}’ is a product that is either</p> <ul style="list-style-type: none"> - a control gear that is placed on the market as a separate product or - a control gear that is placed on the market as a part of a containing product or - a containing product in the following state: all control gears, which could have been readily removed without permanent mechanical damage, are removed, but there is still at least one control gear contained, that cannot be readily removed.
<p>(4) ‘containing product’ means a product containing one or more light sources and/or control gears in scope of this Regulation. Manufacturers or importers of containing products shall enable verification by market surveillance authorities of compliance of light source (s) and/or control gear (s) as set out in Annex IV.</p>	
<p><i>and as a consequence:</i></p>	

Art. 1

1. In accordance with Article 15 of Directive 2009/125/EC, this Regulation establishes ecodesign requirements for placing on the market of **light source_{REG}** and **control gear_{REG}** for light sources.

2nd

We ask the Commission to check if definition (1) (light sources) regarding the luminous flux is safe against loopholes. Our market surveillance authorities recommend a lower value in (c) of 20 or 30 lm because of very inefficient carbon filament lamps with luminous flux lower than 60 lm.

3rd

The list of lighting technologies following point (d) in definition (1) should not be considered exhaustive, in case new products emerge.

3. Ecodesign requirements (Annex III):

We have the following comments regarding the **energy efficiency requirements**:

1st

The draft regulation sets energy efficiency requirements on base of a new methodology and at the same time it sets closer tolerances. We assume that these limit values have been set on base of catalogue data. Product data of light sources recently on the market, are based on current tolerances, which differ from those, mentioned in the draft regulation. Therefore we ask the Commission to check whether the proposed limit values are aligned with the proposed tolerances.

2nd

We do not agree with the statement in the explanatory notes, that high-efficiency ILED products are already available to replace halogen light sources in all applications, except linear double-capped halogen lamps with R7s socket. Mains voltage halogen lamps with G9 socket cover a range of luminous flux up to about 1200 lumens while ILED-Lamps with the same socket cover a range up to 470 lm, only. Due to compactness, which lamps with this socket type must offer, it appears improbable that ILED products will fill that gap within few years. Same applies for low voltage halogen lamps with G4 and GY6.35 sockets. ILED lamps do not cover

the whole range of luminous flux, while halogen lamps cover up to 3 200 lm in case of GY6.35 lamps. Therefore the new Regulation should allow halogen lamps with G9, G4 or GY6.35 sockets to remain on the market for the time being. Concerning the sockets mentioned before, instead of pushing the lamps from the market, luminaires with related sockets should be phased out. A threshold efficacy and end loss factor for G9, G4 and GY6.35 could be provided in Annex III table 1 as follows.

<u>Light source description</u>	η [lm/W]	L [W]
HL G9	26	13
HL G4 and GY6.35	22	7

In order to phase out luminaires with related lamps holders, as well as avoiding loopholes, the following should be done:

i) Extending the scope as follows:

Art. 1

1. In accordance with Article 15 of Directive 2009/125/EC, this Regulation establishes ecodesign requirements for placing on the market of **light source_{REG} and control gear_{REG}** for light sources **and lamp holders_{REG}**.

The reason behind is that there are adapters on the market, which serve as a link between different types of lamp holders. Since such adapters are not in the scope of the draft regulation, adapters could be used as loopholes, allowing owners of luminaires with e. g. E14 lamp holders to operate these luminaires with e. g. G9 lamps.

ii) adding a definition for lamp holders and lamp holders_{REG} in Article 2 in a way that 'lamp holder' is defined in the traditional sense and 'lamp holder_{REG}' in a way, covering lamp holders, adapters which contain at least one lamp holder, luminaires and the like – analogously to the proposal above concerning light source_(REG) and control gear_(REG).

'lamp holder' or 'socket' means a device which holds a light source, e.g. a lamp in position, usually by having the cap inserted in it, in which case it also provides the means of connecting the light source to the electric supply.

This includes but is not restricted to the following socket types:

- G4 following IEC 60061-1 (7004-72)
- G9 following IEC 60061-1 (7004-129)
- GY6.35 following IEC 60061-1 (7004-59)

'lamp holder_{REG}' is a product that is either

- a lamp holder that is placed on the market as a separate product or
- a lamp holder that is placed on the market as part of a containing product, including but not restricted to luminaires and adapters for lamp holders.

iii) adapting the definition for containing product as follows:

'*containing product*' means a product containing one or more **light sources** and/or **control gears** and/or lamp holders in scope of this Regulation. Manufacturers or importers of containing products shall enable verification by market surveillance authorities of compliance of light source (s) and/or control gear (s) as set out in Annex IV.

iv) adding the following regulation:

"Annex III

(...)

Lamp holders_{REG} containing at least a lamp holder of the following types may not be put on the market: G4, G9 or GY6.35."

3rd

Concerning the energy efficiency requirements for separate control gears for LED light sources, we ask to use a function of the output power instead of a limit step curve in table 3 of the current draft regulation. We propose the following function:

$$\text{Minimum efficiency} = P_{cg}^{0.81} / (1.09 \times P_{cg}^{0.81} + 2.1)$$

The reason behind is that in many cases, energy efficiency changes continuously from low levels to high levels. If a stepped function is used, then the limit is constant within a certain range, e. g. between 50 and 100 watts as proposed for control gears for ILED light sources in the draft regulation. At 50 watts the expected efficiency is lower than at 100 watts. Since the function needs to cover the whole range between 50 and 100 watts, the limit value needs to be lower than necessary near to 100 watts, i. e. less ambitious. Using a function with a continuously increasing value instead, allows limits who are ambitious over a wider range. This is taken into account for example in the draft regulation i) when setting limit values for power demand as a function of luminous flux and ii) when setting minimum efficiency levels for FL light source within the range 5 to 100 watts.

4th

In Annex II in the definition (11) of the useful luminous flux, a distinction is made between directional and non-direction light sources (DLS and NDLS). This introduces an arbitrary cut-off point. We propose

- to use the total luminous flux instead of the useful luminous flux and
- to replace the sharp step from NDLS to DLS by a fluent transition.

The reason behind is that the question which fraction of the total luminous flux is useful, depends highly on the particular application. A certain lamp with a certain light distribution may satisfy the user's demand concerning light distribution, while in another case it may have too much scattered light. Light sources with the same beam angle may have considerably different light distributions. Therefore the beam angle should not been used as base for a decision about which fraction of the luminous flux is useful or not. Regulations are not the right place for such a decision. Instead, the buyer should be enabled to identify the right light source for his application.

A *Light bundling factor B* could be introduced which allows this fluent transition:

Light bundling factor $B = 0,15 \times (120 - \text{beam angle}) / 110$

The proposed change leads in annex III to a change for the factors F and C.

beam angle	F
10 ° bis 120 °	0,85 + B
> 120 °	1,0

Table 2: Correction factor C depending on light source characteristics

Light source type	Basic C value
Non-directional (NDLS) not operating on mains (NMLS)	1
Non-directional (NDLS) operating on mains (MLS)	1,08
Directional (DLS) not operating on mains (NMLS)	1,15
Directional (DLS) operating on mains (MLS)	1,23
Special light source feature	Bonus on C
<u>beam angle < 120 °</u>	<u>C + B</u>
FL or HID with Tc > 5000 K	C+0,1
FL with CRI > 90 Ra	C+0,1
HID with second envelope	C+0,1
MH NDLS > 405 W with non-clear envelope	C+0,1
DLS with anti-glare shield	C+0,2
Colour-tuneable light source (CTLS)	C+0,1

5th

We ask the Commission to clarify that all light sources with light as main function and with additional functions as e.g. changing the colour temperature remote-controlled should have a power management function and change into a standby mode when not receiving signals.

We have the following comments regarding the **functional requirements**:

- We ask the Commission to consider switching to R₁₋₁₄ when assessing the colour rendering of a light source. The currently used Ra does not address sufficiently the need of the consumer. Especially for LED there is a tendency to optimize leaving out R9 which leads to less acceptance of LED light by consumers.
- We appreciate that a requirement is set in order to avoid flicker. However, flicker is only defined in a frequency range of about 0-80 Hz. Another temporal light artefact, namely the stroboscopic effect, is missing. As far as we know, the main problem with temporal light artefacts is at 100 Hz and should be regulated as well. There is a parameter for this effect, the stroboscopic visibility measure (SVM), and its measurement should also be required, even if not restricted by a threshold value, at least as an information requirement. We refer a technical

report of TC 34/IEC. For dimmable lamps flicker should be assessed at the critical dimming level (the respective level at which PST and SVM are highest). Since flicker and stroboscopic effects finally are caused by the technology of the control gear, these effects should be addressed for separate control gears as well.

- Control gears should also have requirements with regard to dimming to 0 %.

Considering **information requirements**, we have the following comments:

- We ask that information requirements for the packaging are explicitly listed in the ecodesign regulation and do not just refer to the labelling delegated regulation.

4. Removal of light sources (Article 4):

We ask the Commission to explain the motivation and the meaning of Article 4. In its current form, Article 4 is confusing and unrelated to the rest of the regulation. In addition, removability is a necessary but not sufficient condition for exchangeability, which should be the goal from a circular economy perspective. We ask that Article 4 is replaced by a clear roadmap that outlines, how standardization is to progress, so that exchangeability can be regulated in the next revision.

We ask the Commission to extend the obligation of removability to overvoltage protection devices. The reason behind is that after an event of damage, they need to be exchanged to continue the needed protection.

5. Verification procedures for market surveillance (Annex IV)

Regarding the verification procedures, we have several comments:

- It should be made clear that verification procedures are always performed at 230 V and 50 Hz regardless of the range given by suppliers (an exemption are low voltage lamps).
- It is not completely clear from the current text what approach market surveillance should choose in cases where light source(s) and/or control gear(s) for inspection cannot be dismantled without permanent mechanical damage. Our proposal is that a containing product with at least one light source that cannot be readily removed or at least one control gear that cannot be readily removed should be tested as a whole as light source or control gear, respectively.
- If desired, market surveillance authorities should have the flexibility to conduct product testing, before having verified the document, and apart from that, they should have the possibility to decide if costs for testing 10 units are too high or not. Therefore, we propose to re-formulate point (4) into: "If a Member State authority intends to test a model physically, 10 units of the model should be tested. For light sources, if the acquisition costs for the 10 units would not seem to be appropriate for the Member State authority, the authority may reduce the sample size to 3 units."
- Concerning tolerances, it should always be possible that the determined value is better than the declared one, e.g. the CRI.
- According to our market surveillance authorities, the tolerances of the useful luminous flux, the luminous intensity and the beam angle are too small for the testing of 10 units, because they are in the same order as the measurement uncertainty. We propose to increase them to 10 %.

6. Accelerated endurance testing (Annex V):

Our market surveillance authorities appreciate the possibility to reduce the sample size to three units for each test. However, the temperature cycling test will require a climatic chamber, and we see the risk that this will not be available at the laboratories of market surveillance. Moreover, we recommend to include voltage peaks in the endurance testing.

We also very much appreciate the Commissions intention to reduce testing duration and costs by offering an accelerated endurance test. In general this should be the way forward, but in this specific instance our market surveillance would prefer to keep the 6000 h test with a lumen maintenance of 80 % for technical reasons and

to include – as it has been – lifetime requirements for all lamp types. Apart from that, market surveillance will not have the knowledge for all products on how to bypass thermal protecting devices.

It is not clear why the endurance testing should be limited to LED and OLED-light sources. There are information requirements for FL and HID lamps concerning the lumen maintenance factor and the survival factor but no verification procedures.

We propose to include overvoltage tests into the accelerated endurance testing or perform them afterwards.

7. Revision

We agree with a revision no later than 1 September 2022.

The revision should at least consider

- the exemptions;
- to substitute R_a resp. $R_{1.14}$ as measure for colour rendering by a more adequate metric and
- to substitute the luminous flux as measure for brightness by a more adequate metric and
- the removability and exchangeability of light sources, control gears and overvoltage protection devices.

Comments on main aspects of the draft of the energy labelling regulation

The comments given on the draft of the ecodesign regulation and applicable to the text for the energy labelling will not be repeated here.

If an obligation is set out in the framework regulation, it should not be repeated in the delegated act. If the wording is not exactly the same it creates confusion and even if it is there is no guarantee that changes to it are applied to both regulations at the same time.

1. Scope (Article 1):

We appreciate that no label for luminaires is proposed. However, we ask the Commission to ensure that the consumer is informed at the point of sale if a luminaire is offered with replaceable or non-replaceable light sources.

Additional exemptions should be provided for customized small series production.

2. Obligations of suppliers (Article 3):

We propose to re-formulate 1.(a) saying that if the light source is intended to be marketed through a point of sale, a printed label produced in the format and containing information as set out in Annex III is supplied with the light source. The reason behind this is that for bulk ware (especially sold in response to public tenders) there has not been the requirement to have a label and we do not see the reason to introduce that obligation. Professional consumers will regard the product information, not the label.

3. Obligations of dealers (Article 4):

Especially in the case of light sources, the time to relabel products is hardly realistic. Shops will have a large number of individual units on stock which they will need to relabel with a sticker on the package. These stickers will all have different formats, depending on the packaging. We propose to extend the relabeling period to six weeks and to let the shops put up billboard signs with the new label during that period. By that the consumer will be informed of the new label from day one but the burden on the shops will be minimized.

4. Revision (Article 7)

DIN SPEC 5031-100:2015-08 defines the factor a_{mel} which describes what is known as the melanopic (non-visual impact of light, captured by special photoreceptors containing the light-sensitive molecule melanopsin) light intensity of a light source on humans. We ask the Commission to examine in the revision the use of an appropriate symbol to depict a_{mel} on the label. We think that consumers should be encouraged to regard the health aspects of light as well to promote innovation in that area.

5. Entry into force and application (Article 9):

We ask the Commission to let all new labelling regulations enter into force simultaneously, especially to ensure that all new labels are introduced at the same

time. We also ask to communicate a definite schedule on the label and ecodesign package in the near future.

6. Label (Annex III):

From our point of view, the design of the new label should differ more from the old one to help consumers recognize that this is a completely new scale. The results from the consumer survey should be taken into account.

7. Product information (Annex V):

- Information regarding standby should be given in any case, i.e. even if it is zero. Consumer will take note of information more quickly if they are always standardized.
- Lifetime for consumer products should be given on the package (in hours). In addition, a function of lumen maintenance and lamp survival in the technical documentation should be provided. Lifetime should also include lifetime of the control gear.
- We propose M80F20 instead of M70F50 to better inform consumers.
- Instead of useful flux, information requirements should aim on total luminous flux. The supplier is free to deliver additional information like luminous flux within a con angle of 90 °. The reason behind is described above (ecodesign, Annex III).
- Without information requirements for light sources which are stated to be equivalent with incandescent lamps, it must be feared that inappropriate advertising statements will be back on the market which would be a draw back to the situation before 2009. Therefore, we propose to maintain the tables of equivalence to incandescent lamps. The same applies concerning the term 'energy saving lamp', where the minimum efficiency criterion for using this term needs to be adapted.
- A revision of the ecodesign regulation concerning metrics used for brightness and colour rendering needs a wide database. Therefore, we propose to add the following requirement in point 4.2, Compliance part of the product database:
“(k) spectral power distribution within the range 380 to 780 nm in one nm-steps”

Comments on editorial aspects of the two drafts

- **Concerning both drafts:**

- o In order to facilitate the handling for the users, both regulations should include a table of content.
- o A comparison of Annex I, point 1 of both drafts shows the following difference, marked by underscore:

draft for ecodesign (ED)	draft for energy labelling (EL)
"1c) in or on military or civil defence <u>establishments, equipment,</u> ground vehicles, marine equipment or aircraft as set out in Member States' Regulations or in documents issued by the European Defence Agency"	"1e) in or on military or civil defence ground vehicles, marine equipment or aircraft as set out in Member States' Regulations or in documents issued by the European Defence Agency."

We ask the Commission to check if this difference is intended. If so, in order to avoid misunderstanding, we propose the split point ED 1c) into two points, where the second one has the same wording as point EL 1e).

- o A comparison of Annex I, point 2 of both drafts shows the following difference, marked by underscore:

draft for ecodesign (ED)	draft for energy labelling (EL)
(f) light sources and separate control gears in portable battery-operated products, including but not limited to e.g. torches, mobile phones with integrated torch light, toys including light sources, desk lamps operating only on batteries, armband lamps for cyclists, solar-powered garden lamps;	(b) light sources in portable battery-operated <u>containing</u> products, including but not limited to e.g. torches, mobile phones with integrated torch light, toys including light sources, desk lamps operating only on batteries, armband lamps for cyclists, solar-powered garden lamps.

We ask the Commission to check if this difference is intended.

- o A comparison of Annex III, ecodesign with Annex IV energy labelling shows the following differences when calculating the ratio between DLS and NDLS resp. MLS and NMLS when looking on the factors C and T_{FM} :

draft for ecodesign, III, table 2	draft for energy labelling, IV, table 1
ratio MLS/NMLS for factor C: DLS: 1.0 <u>7</u> NDLS: 1,08	ratio MLS/NMLS for factor F_{TM} : DLS: 1.08 NDLS: 1.08
ratio DLS/NDLS for factor C: MLS: 1. <u>14</u> NMLS: 1. <u>15</u>	ratio DLS/NDLS for factor F_{TM} : MLS: 1.18 NMLS: 1.18

We ask the Commission to choose consistent factors.

- **Concerning the draft of the ecodesign regulation**

- o Article 1
 - Definitions (15) and (16) speak about LED and OLED in the sense of inorganic and organic LED. The abbreviation LED stands for light emitting diode, which is an umbrella term. Inorganic and Organic LED are sub terms or sub groups. Using an abbreviation for the upper group as well as for a sub group could cause confusion. Therefore we propose to use the terms ILED and OLED.
- o Article 2
 - Definition (9) creates the impression that Ra is a unit of the CRI, however Ra is a type of Colour Rendering Index but not a unit.
- o Annex I
 - In point 1, there are two bullets named a).
- o Annex II
 - In in definition (6), we propose to speak of *networked light sources* instead of *connected light sources* because this expression could be misleading.
 - Definitions (15) an (16) speak about *standby* and *network standby*. Standby is an umbrella term. There are different types of standby modes. In the draft, the term standby is obviously used as a sub term. That will cause confusion. Therefore, we ask to use the terms *simple standby* or a better term to be found and *network standby*.

- o Annex III, table 1:
 - The character η is commonly used for luminous efficacy. Within the equation for P_{onmax} , it does not stand for luminous efficacy. In order to avoid confusion, we ask to use another character.
 - The parameter L is not a factor. Moreover, perhaps another expression should be found for this parameter because it has nothing to do with "end loss".
 - In Annex III, table 1, "foot" is used as a unit. We ask the Commission to use SI units.
- **Concerning the draft of the energy labelling**
 - o Annex V
 - In point 4.1p, the reference should probably be given to section 3.1 instead of 1.1.
 - In point 2, the wording probably should be "The technical documentation to be provided by the supplier pursuant to Article 3(f) Article 3, **1**(f)"