

**ENERGY LABELLING and ECODESIGN
WORKING DOCUMENT**

for comments by 15 September 2011 and for discussion on 23 September 2011

**Questions to the Technical Subgroup of the Ecodesign Consultation Forum
on the draft energy labelling and draft codesign regulations discussed on 5 July 2011**

Some of the questions below ask for data on particular aspects. This should be understood as requests for data in addition or in contradiction to that given in the VITO preparatory study and in the follow-up study from UK DEFRA / Swedish Energy Agency / ECEEE (both studies are uploaded to CIRCA as background information). If you do not have information that would complement or question the information already collected in those studies, please skip the answers to those questions.

1. Scope of the regulations

1.1. Professional/household

Do you have information as regards the market share of the following technologies and the impact of the proposed regulations on them?

- a) directional halogen lamps designed for use exclusively in professional lighting
- b) directional household high-intensity discharge lamps

1.2. Special purpose lamps

- 1.2.1. Do you agree with the use of the "special purpose lamps" category (as in Regulation 245/2009, ie lamps claimed to be unsuitable for general lighting, not for household room illumination) as a means of providing exemptions to the draft Regulations' requirements?

Yes, however the claim has to be justified by performance parameters, i.e. showing that the lamp to be exempted when the performance parameter(s) which makes the lamp "special purpose" is substantially different from general lighting lamps. At this stage very inefficient incandescent lamps for the construction market with a shock proof filament (performance parameter) are sold as "special purpose" lamps to consumers using it for general lighting. CFL lamps (and more and more led lamps) are sufficiently shock proof too to be used as a replacement.

It is strongly recommended to amend 244/2009 in this respect.

- 1.2.2. Do you agree that to facilitate market surveillance, the technical documentation of each lamp claimed to be special purpose should indicate the technical parameters required for the lamp's special purpose, and should do so even if the lamp is technically not different from general lighting lamps?

Yes. However, if the performance of the lamp as regards to the parameter(s) which make the lamp "special purpose" is not substantially different from a general lighting lamp, no exemption shall be provided.

- 1.2.3. Do you agree with the approach that as regards special purpose lamps in the energy labelling regulation, we simply refer to the Ecodesign Regulations?
Article 1 – Subject matter and scope
(...) "This Regulation does not apply to special purpose lamps."
Article 2 – Definitions
"Special purpose lamp' means a lamp not intended for general lighting and exempted from minimum requirements in implementing measures of the Directive 2009/125/EC."

Yes, but the wording should only refer to the definition of special purpose lamp, not to the exemption.

2. Definitions

2.1. LED products

Could you provide your views on the definitions covering LED lamps in the working documents, taking into account the following aspects?

- a) definitions are needed only for those products that are targeted by the provisions of the regulations
- b) if a product group targeted by the provisions of the regulations is too generic compared to the categorisation used outside the context of ecodesign/energy labelling, for clarity it is possible to list in its definition the subgroups that compose the product group (e.g. " 'LED lamp' includes LED modules and self-ballasted LED lamps")
- c) the objective is to define what makes a product group unique compared to other product groups in the context of the regulations, not to provide a complete technical description of the product group

The definitions 5, 14, 15 and 16 should be consistent with the IEC Publicly Available Specifications for LED products i.e. Self-ballasted LED lamp, Self-ballasted LED modules (Type 1), Semi-ballasted LED module (Type 2) and Non-ballasted LED module (Type 3) and even LED luminaires containing these devices.

If necessary require that for luminaires with integrated lamps/modules where the lamps/modules can not be removed by the end-user (according to the manufacturers instruction) without damaging the lamp/module (meaning that it produces no light any longer) it shall be possible to remove the lamps/modules as instructed in the technical documentation in such a way that they can be measured for compliance (note that it is not necessary that the luminaire will survive this dismantling).

3. Tolerances in verification procedures

Could you provide recommendations for the verification procedure by market surveillance so as to have tolerances more tailor-made to the requirements of the Regulation, instead of the single tolerance value per product category as in the current Annex? Of course, only in case you would find it appropriate at all to better distinguish tolerances.

Try to make the verification procedure more simple by keeping the 10% deviation but reducing the number of lamps to be tested.

In any case remove the verification for the retrofit lamps. Do not make the compliance of retrofit lamps dependent on other lamps.

4. Calculation methods for the energy label

4.1. Efficiency requirements for label classes

What would be the appropriate method to set efficiency requirements for the different label classes?

Options range from the energy efficiency index as calculated in 98/11/EC, to a single lm/W value for each class independently of wattage or light output, with several options including a mixture of these. See more discussion in the Commission's working document 1 on Energy labelling.

Does your recommendation affect the following aspects determined by the method, and if yes, how do you evaluate the effect?

- a) downgrading or upgrading existing lamp classifications
- b) clarity for consumers
- c) equal treatment of technologies, taking into account the main fields of applications covered by the label, and necessary incentives for development
- d) actual energy savings achieved by entire lighting systems, taking into account any incentives created by the label to prefer certain lamp categories over others

Although it might be useful to reconsider the proposal from the Commission, the proposal should be un-changed if acceptance by industry and MS would cause delays.

4.2. "Annual" electricity consumption

Do you agree that taking into account the diversity of applications in household lighting and especially in professional lighting, it would be more accurate to indicate the energy consumption over 1000 hours (kWh / 1000 hours), rather than over a year (which always assumes a given amount of operating hours / year, and can be very misleading)?

Yes, we agree using kWh/1000 hrs but this parameter and figure doesn't have to be part of the Full label but can be on the packaging elsewhere.

4.3. Correction for low pressure sodium lamp (LPS) control gear

In Table 2 of the draft energy labelling regulation, the power of all lamps operating on external control gear is corrected by a technology-dependent factor for losses caused by their gear. However, LPS lamps are not listed. Do you agree that LPS lamps should also get a correction factor, and if yes, what should it be?

(LPS lamps are within the scope of energy labelling, as for example in motorway lighting they can be compared to HID lamps and to LED lamps)

If LPS lamps need control gear then these lamps should get a correction factor.

4.4. Measuring the useful beam angle

On the issue of verifying whether a lamp is a DLS or NDLS (80% of flux in 120 degree cone), and measuring the useful beam angle in 90°/120°: in order to reduce test costs and administrative burden for market surveillance authorities, some alternatives to expensive testing are considered, i.e.

- a) testing in a 180 degree cone ('forward flux'),
- b) report of visual inspection and manufacturer's declaration of beam angle; testing with a goniophotometer only if visual inspection raises doubts.

('visual inspection' would mean that the authority would have to take a photo of the light distribution against an appropriate background. A small software-program that translates the pixel intensity of the photo into an approximate (2 D) flux distribution that would help determine whether a more thorough inspection is to be conducted.)

Which one of these alternatives, if any, would you find acceptable? Do you have a better alternative?

Can you estimate the difference in cost and in availability to market surveillance of the two main measurement instrument (integrating sphere and goniophotometer)?

5. Label layout

Do you agree that three versions of the lamp label are needed?

- a) Independent full label (brand name and model number have to be shown for identification)
- b) Full label on the packaging (no need to repeat the brand name and model number, to save space)
- c) Simple label on the packaging (label class scale alone, it is a version allowed by Directive 98/11/EC that provides flexibility in packaging design since 1998)

If you do not agree, where do you see an opportunity for simplifying the scheme, and for what reason do you want to simplify it? Are there any adverse effects to the simplification (e.g. less flexibility in the design of small packagings), and if yes, how do you propose to tackle them?

As indicated in our comments, we do not agree: the simple (short) version of the label is not needed. If the size of the label is a problem for small packaging then the minimum size of the label need to be reduced. The luminous flux (lm) which is the key performance of the lamp has to be part of the label.

6. Efficiency of directional lamps

6.1. Efficacy range of the technologies involved

Could you provide your latest information as regards the available efficacy range of the following directional lamp types, in three typical wattages? With luminous flux measured in a 90° cone (except for compact fluorescent lamps where it is measured in 120°). If you deviated from this useful beam angle please clearly indicate it.

Lamp types:

- ✓ Incandescent
- ✓ conventional mains voltage halogen
- ✓ conventional extra low voltage halogen
- ✓ xenon-filled mains voltage halogen
- ✓ infrared coated extra low voltage halogen with external transformer
- ✓ infrared coated extra low voltage halogen with incorporated transformer
- ✓ Compact fluorescent lamp
- ✓ High intensity discharge lamp
- ✓ non-retrofit LED module
- ✓ extra low voltage retrofit LED (requiring external control gear)
- ✓ Self-ballasted LED lamp

Suggested format for the information for each lamp type:

Lamp type 1	Model designation	Flux measured in 90° (120° for CFLs)		Flux measured in 180°	
		Lowest efficacy	Highest efficacy	Lowest efficacy	Highest efficacy
[Lowest wattage category]	[e.g. MR16]	[e.g. 12 lm/W]			
[Most frequent wattage category]					
[Highest wattage category]					

We would also be interested in learning what your estimate is of the efficacy likely to be achieved by each lamp type by 2016.

6.2. Optical efficiency of the reflector

What level of optical efficiency can you observe in mainstream examples of the different categories of reflector filament lamps (MR, AR, R/NR, PAR), expressed as % of the light from the source that is leaving the lamp?

7. Requirements for retrofit LED lamps replacing fluorescent or high-intensity discharge lamps

Do you agree with the principle that such retrofit LED lamps should be required to have similar photometry, at least equivalent luminous flux and smaller power than the lamps

they intend to replace? If yes, could you suggest a formulation for this requirement and a verification procedure to check conformity with the requirement? If not, what method (if anything) should we use in setting requirements on fluorescent and HID retrofit lamps?

In general the main point is that a lamp shall meet the declared specifications. Comparing with a lamp that it intends to replace is embarking on a very slippery route, especially for verification because it introduces another source of variation (i.e. the intended replaced lamp). What can be done is using an equivalence table which prescribes the luminous flux a lamp must produce if it claims to replace a fluorescent or HID lamp of a certain wattage.

8. Halogen lighting converters

Could you suggest a set of requirements for halogen lighting converters that make sure all of the following criteria are met:

- a) The requirements bring significant cost savings to the end-users of important categories of halogen lighting converters.
- b) No category of halogen lighting converter is phased out that would not have an equivalent replacement that can operate the same lamps.
- c) The safety of lamps using external halogen converters is not compromised.
- d) No lock-in effect is created that would block the upgrading of extra low voltage halogen installations with extra low voltage retrofit LEDs (e.g. flexibility of the converter to work with radically smaller system wattages).

9. Lamp functionality requirements

9.1. Measurement of lifetime

Can you propose a solution for checking compliance with lifetime requirements of lamps that have a long life? Is it for example a feasible option to set a requirement on lamp survival factor after a shorter time (e.g. 6 months of testing), rather than to make market surveillance wait until the end of the lamp's claimed life?

Do you consider that current method of determining lamp lifetime (50% lamp survival at the claimed lifetime) raises issues of consumer confidence in lamps?

9.2. Power factor

Is the definition of power factor appropriate for the purposes of lighting products?

Do you consider the power factor as a necessary functionality requirement, or could the Regulation do without it?

What levels of power factor would you find acceptable for CFLs and LEDs? In order to be consistent with 244/2009 it is recommended to define minimum requirements for the Power factor for other than LED lamps. For Led lamps it is recommended to define separate minimum requirements for the $\cos \phi$ and for the harmonic distortion (see the attached proposal and position paper of the ELC)

9.3. Level of ambition

Please assess the level of ambition of the proposed functionality requirements for the different lamp types in Tables 5 to 7.

9.4. Retrofit lamps

Should retrofit lamps (e.g. LEDs or CFLs replacing reflector incandescent bulbs) comply with additional functionality requirements as compared to non-retrofit lamps? If yes which should be these additional requirements?

No, since we don't think it is possible to define retrofit objectively, i.e. other than saying a lamp is retrofit when the manufacturer claims it is retrofit.

10. Product information requirements

10.1. Do you agree that at least an indication of the luminous flux of the lamp should be required on the lamp itself (to help consumers replace the lamp at the end of life)? Small halogene lamps should be exempted from this requirement.

10.2. Requirements on minimum luminous flux for lamps claimed to be retrofits to conventional halogen reflector lamps

Would you agree if instead of listing the luminous flux requirement for each lamp technology in three columns (obtained through average lumen maintenances applicable to the entire technology), the Regulation provided for a dynamic calculation of the minimum luminous flux by using a multiplication factor obtained from the claimed lumen maintenance of the particular retrofit lamp model?

10.3. Do you agree that the warning about a luminaire's non-compatibility with energy saving lamps should be introduced as a product information requirement?

Such 'luminaires with negative lock-in effect' would be defined as a general lighting luminaire that is not compatible with lamps classified as 'B' or lower.

The compatibility would be established in harmonised standards, taking into account socket type, dimension of the space available for lamps, dimmability etc. Awaiting the harmonised standards, a transitional method to establish compatibility could be published as a Commission communication in the OJ (just as for measurement methods for some products).

Yes, a warning is useful.