CONSUMER RELEVANT ECO-DESIGN REQUIREMENTS FOR DOMESTIC LIGHTING (PART 1)

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Summary

In the context of the implementation of the Eco-design of Energy-using Products (EuP) Directive, the European Commission is proposing eco-design requirements for general lighting. Requirements for domestic lighting are of special interest for each consumer. The requirements are based on the findings of the relevant preparatory study on domestic lighting (Lot 19).

This paper outlines the main consumer relevant issues related to the possible eco-design requirements for domestic lighting and recommends improvement options. We give specific, technical recommendations to increase the energy efficiency and overall performance of these products.

The Commission provides several options concerning the level of ambition of minimum lamp efficiency requirements and timing for discussion. Consumer organisations call for an implementation of the second proposed option combined with an ambitious timing in order to prevent possible negative side effects on consumers while ensuring high energy savings.

We give detailed recommendations as to what kind of information should be provided to consumers and how. Moreover we propose to introduce a free of charge recycling system for mercury containing lamps that would allow consumers to bring defective lamps back to the point of sale.

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Introduction

The European Commission has proposed to set minimum energy efficiency ecodesign requirements on domestic lighting. The measure would affect all lamps for general lighting placed on the EU market and would phase out incandescent light bulbs.

This paper outlines the main consumer relevant issues related to the possible eco-design requirements for domestic lighting and recommends improvement options for these products.

The Commission provides several options concerning the level of ambition of minimum lamp efficiency requirements and timing for discussion. We discuss which option and timing seem most favourable from a consumer point of view.

We give detailed recommendations on which information on general lighting equipment should be given to consumers. Moreover, we propose to introduce a free of charge recycling system for mercury containing lamps that would allow consumers to bring defective lamps back to the point of sale.

I. Comments on the working document on possible ecodesign requirements for general lighting equipment (Annex 2)

1. Level of ambition of minimum lamp efficiency requirements

The Commission's working document describes three different options for phasing out inefficient lamps. While the first option would provide for the highest energy saving potential, consumers would have more choice according to option 2. As option 2 would also achieve considerable energy savings (71 TWh per year for the EU-27), this option seems favourable. In contrast to this, the saving potential of option 3 is 50% lower than option 2 and therefore does not appear satisfactory.

Consumers will financially benefit from shifting from General Lighting Service Lamps (GLS; incandescent lamp) to Compact Fluorescent Lamps with integrated ballast (CFLi). The preparatory study[1] has clearly shown that CFLi are the most cost effective choice and that halogen lamps are less expensive than GLS in terms of Life Cycle Costs (LCC per Lumen per hour).

2. Level of ambition in timing

In the working document two possible levels of ambition in timing are presented for the implementation of the ecodesign requirements. The ambitious timing would implement the ecodesign measures within 5 years whereas the cautious timing would need 9 years for completion.

In order to achieve the overall energy efficiency goals set by EU, the ambitious timing has to be favoured. With the ambitious timing the annual energy savings are more than 50% higher each year and could be achieved four years earlier than with the

[1] See draft interim task 5 report, p. 36,37

cautious timing in combination with option 3 for the energy efficiency requirements. With the cautious timing 60 Watt GLS would be phased out only in the fifth year whereas the ambitious timing would have achieved a complete phase out already after three years.

Recommendation

Option 2 leaves more choice to consumers as it leaves the possibility to use further existing luminaires which need bright point like light sources. At the same time this solution provides for considerable energy savings.

Consumer organisations therefore ask to implement option 2 combined with an ambitious timing in order to prevent possible negative side effects on consumers while ensuring high energy savings.

II. Comments on possible ecodesign requirements for general lighting equipment (Annex 3)

3. Recitals

Recommendation

Point 2 of the recitals excludes all possible ecodesign requirements which are not listed to be significant. We ask to delete recital 2 from annex 3 as other significant aspects might come up in the future which should not be excluded at this point.

4. Review of the measure

Recommendation

In order to adapt the ecodesign requirements to future technology development the review routine “no later than five years” is welcomed and should be retained.

5. Technical specifications of lamps for general lighting

5.1. Definition for white light

We question why several propositions for the technical specifications of lamps for general lighting of the preparatory study have not been introduced in the possible ecodesign requirements. We ask the Commission to explain why the definition of white light was set more narrowly and to consider what the consequences will be for consumers.

5.2. Light output to be set at 100 Lumen

The working document sets the threshold for lamps covered by the ecodesign requirements at 150 Lumen. In contrast, the preparatory study proposed a threshold of 100 Lumen.

Recommendation

Although normal lamps for household use usually have a light output of 200 Lumen or more, we consider that the threshold should be set at 100 Lumen. This will ensure that luminaires that use several lamps with less than 150 Lumen are covered by the ecodesign requirements.

5.3. Definition of caps

The caps G13, G5, 2G11 and G23 were included in the preparatory study. These gaps are not mentioned in the possible ecodesign requirements.

Recommendation

We call for these caps to be introduced in the ecodesign requirements. Moreover, we have to ensure that possible loopholes will be avoided.

6. Product information requirements

Consumers have specific information needs when buying lamps for domestic lighting and need to be adequately and clearly informed about the relevant product parameters.

Recommendations

- For an easy understanding by consumers, the different colour temperatures should be categorised in 3 groups: warm (<3.300 Kelvin), intermediate (3.300 – 5.300 Kelvin) and cool (>5.300 Kelvin).

- In order to make the information on color rendering levels understandable for consumers it should be displayed as follows:

  - Poor color rendering (-)
  - Average color rendering (+)
  - Very good color rendering (++)

- The equivalent wattage with a GLS lamp should be given.

We do not support the use of the term “energy saving lamp”, or similar, for lamps with an energy efficiency label B (stage 1) or B+ (stage 2) in case they have a very good colour rendering. Assumed option 2 will be adopted, no energy efficiency levels other than A and B would be allowed. Consequently all lamps could be provided with the term “energy saving lamp”. As this would not give consumers useful additional information the term “energy saving lamp” (or any similar product related promotional statement about lamp efficacy) should only be provided if the lamp meets the requirements for the energy efficiency class A (and above). This would ensure that the consumer will not be confused and could make a choice that leads to actual energy savings.

It should not be left to the manufacturer to decide whether they provide relevant consumer information *on* or *with* the package, as it is stated currently in the Commission proposal. In the ecodesign requirements it has to be made clear which information has to be given on the package in order to ensure that the most important

information is easily accessible and understandable for consumers. We therefore ask the Commission to include the following specification in the ecodesign requirements:

a) Information on the front side of the package:

- Lamp wattage [Watt]
- Nominal Luminous flux [Lumen]
- Colour temperature: warm (<3.300 Kelvin), intermediate (3.300 – 5.300 Kelvin), cool (>5.300 Kelvin)
- Lamp life time [Hours]
- Energy efficiency class (according to the EU energy labelling scheme[2])

b) Information on the back side of the package:

- Warm up time up to 80% of the full light output [Seconds]
- Lumen maintenance factor at the end of life [percent]
- Colour rendering level
- Warning if lamps cannot be dimmed on dimmers able to dim fluorescent lamps
- If designed for optimal use in non-standard conditions (e.g. outdoor application)
- Where and how to dispose of the lamp safely
- Information that the lamp is taken back free of charge at the point of sale

c) Information on the back of or in the leaflet:

- Starting time [Seconds]
- Power factor if less then 0,9
- Mercury content [milligrammes]
- If lamp contains mercury, how to clean up debris if lamp breaks
- Information on the light distribution of the lamp (to be defined).

7. Performance requirements on lamps for general lighting

We welcome that performance requirements are included in the ecodesign requirements. Currently consumers still get “cheap” CFLi with bad quality that often do not last for the life time indicated on the package.

Recommendations

We see a need to set additional performance requirements in order to ensure a good performance of lighting for consumers:

<u>Lumen maintenance</u>

The requirements for Lumen maintenance should be stricter for stage 33. In stage 3 the Lumen maintenance for mercury containing lamps at 2.000 h should be 88 % and at 10.000 h should be at least 75 %. If the European Compact Fluorescent Lamp Quality Charter sets stricter limits in the future, these limits should be adopted in the implementing measure.

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[2] See Directive 98/11/EC. However this implementing Directive needs to be revised in order to improve consumer information. We support the A-G labelling scheme but we are convinced that A+ to A+++ classes should not be kept. Instead the thresholds for A-G have to be dynamically adapted.

[3] According to the working document the Commission proposes to introduce the requirements in a three-staged approach which will come into force successively. In each stage the requirements e.g. for lamp performance will be tightened.

Short switching cycles

Experience from testing institutions[4] shows that the lifetime of CFLi is largely determined by their ability to withstand repeated ON-OFF switching cycles. Short ON-OFF switching cycles (e.g. 0,5 minutes on and 5,5 minutes off) are one main cause of lamp failure even though there are many lamps that reach 20.000 switching cycles (equal to 9 times switching on- and off per day). Testing institutions and consumer organisations[5] therefore use short cycles in their testing procedure. The testing procedure defined in the European lamp life test standard (EN 50285) is based on long switching cycles (e.g. for CFLi 2h45 on and 0,15h off). This standard therefore does not adequately take into account likely consumer behaviour.

In order to determine the ability of lamps to withstand repeated ON-OFF switching cycles, the testing procedure to determine the "number of switching cycles" has to be changed to short switching cycles, e.g. 0,5 minutes on and 5,5 minutes off. This performance requirement should be explicitly mentioned in the ecodesign requirements. A similar legal requirement for short on/off switch cycles was already defined for the award of the ecolabel in order to complement the EN standard.

Lamp warm up time

The warm up time of the lamp is an important factor for consumers using CFLi and should be as short as possible. In product tests the lamp warm up time is determined to 80% light output which seems to be more adequate to consumers expectancy than when determined by a warm up time to 60% light output. In recent tests on CFLi[6] none of the tested lamps needed 120 seconds until 80% of light output was reached. Most of them needed less than 60 seconds.

Against this background we ask for the ecodesign requirements for stage 3 to be strengthened. The lamp warm up time to 80 % light output should be used as the basis for the requirements. In stage 3 the lamp warm up time for mercury containing lamps ought to be no more than 60 seconds.

8. Requirements on luminaires for general lighting

Recommendation

Luminaires usually have a long product lifetime and consumers should be able to get retrofitting lamps for a long time after the purchase of a new luminaire. Luminaires with sockets for which consumers cannot buy substitute lamps in the near future should therefore be phased-out as soon as the implementing measure comes into effect. This should be clearly mentioned in the measure.

9. Requirements on wall mounted lamp dimmers

Currently only a limited number of special CFLi is dimmable and lamp dimmers for GLS usually do not fit with CFLi. As light dimming is an important means for consumers to create flexible lighting conditions and to save energy, we welcome the requirement

[4] E.g. S.A.F.E., Switzerland
[5] E.g. Stiftung Warentest, S.A.F.E., Consumentenbond
[6] by Stiftung Warentest Germany (03/2008) and S.A.F.E. Switzerland (10/2007)

that "*from Stage 1 wall-mounted lamp dimmers for general lighting shall be able to dim fluorescent lamps with integrated ballast*".

10. Requirements on waste of lamps, luminaires and wall-mounted lamp dimmers for general lighting

The low recycling rate of CFLi is a problem in terms of mercury pollution. We therefore ask the Commission to introduce a free of charge take-back system for lamps at the point of sale. This system should be based on the already existing system for batteries. Such a system has already been introduced in shops in Hungary.

11. Requirements for market surveillance

As no resilient market data could be collected for the preparatory study it is crucial to improve the situation by establishing a mandatory data collection system for monitoring.

Recommendation

Manufacturers and importers should be obliged to deliver market data such as product features and sales figures regularly in order to enable national market surveillance authorities to monitor the applicable ecodesign requirements.

12. Cross reference to other legislation processes (RoHS)

The working document does not set possible ecodesign requirements for the mercury content of lamps with a cross reference to the RoHS Directive[7].

As the benchmark value for mercury content of compact fluorescent lamps is 1 mg or less according to the preparatory study, we support decreasing the maximum level of mercury in lamps from the current 5mg in the RoHS Directive, to 1mg. However, as the number of mercury containing lamps will sharply increase in consumer households in the future, we see a need to implement this requirement as soon as possible. The requirement of 1mg should therefore be implemented in the legislation that will be first adopted by the regulator, whether an EuP implementing measure or a revision of the RoHS Directive.

13. Cross reference to other EuP Lots

Consumer organisations have called for a well-placed off switch for halogenic lighting converters when external power supplies were discussed in the Consultation Forum on 22 February 2008. We emphasise that with ecodesign requirements for the location of the switch a 0.0 Watt off-mode threshold for power supplies would be technically simple. This issue should therefore also be addressed in Lot 8 on Office Lighting and Lot 19 on Domestic Lighting.
END.

[7] Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment