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COMMISSION REGULATION (EU) No .../..

of **XXX**

**implementing Directive 2009/125/EC of the European Parliament and of the Council
with regard to ecodesign requirements for directional lamps, light emitting diode lamps
and related equipment**

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

Grounds for and objectives of the proposal

The Ecodesign Framework Directive 2009/125/EC¹ establishes a framework for the setting of eco-design requirements for energy-related products. It is a key instrument of Community policy for improving the energy and other environmental performances of products in the Internal Market. The Directive lists products identified by the Council and the European Parliament as priorities for the Commission for implementation, including lighting in both the domestic and tertiary sectors (Article 16). As important elements of this larger category, directional lamps (spotlights and reflector lamps), light emitting diode lamps, luminaires and related accessories are priority product groups considered for implementing measures under the Ecodesign Directive.

The Regulation completes the first set of implementing measures on lighting products adopted pursuant to the original 2005 Ecodesign Directive. It constitutes the second part of the eco-design legislation addressing household lighting (the first part is Commission Regulation 244/2009² on the eco-design of non-directional household lamps). It covers directional lamps with efficiency, functionality and product information requirements, and it establishes functionality requirements also for non-directional light emitting diode (LED) lamps, which were not set in 2009 due to the novelty of the technology (while efficiency and product information requirements on this lamp type were set already in Regulation 244/2009). In as much as the Regulation's scope is not restricted to household lighting, but covers also professional directional and LED lamps, it also complements Commission Regulation 245/2009³ on the eco-design of lamp technologies typically used in professional lighting, as that regulation also excluded directional lamps and professional LEDs. With the current Regulation, the three eco-design measures on lighting products will provide a quite comprehensive coverage of the major lamp types used in lighting in households and in professional applications.

Accessorially, the Regulation also sets efficiency requirements on halogen lamp control gear, which were already announced during the preparations of the eco-design regulation on external power supplies (Commission Regulation 278/2009⁴) from which halogen lamp control gear was excluded.

The uptake of energy saving lamps is further promoted in the Regulation by a requirement for all equipment between the mains and the lamps (including luminaires) to be compatible with energy saving lamps according to state-of-the-art requirements for compatibility (to be set out by European Standardisation Organisations in harmonised standards).

¹ OJ L 285, 31.10.2009, p. 10.

² Commission Regulation (EC) No 244/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to eco-design requirements for non-directional household lamps, OJ L 76, 24.3.2009, p. 3, amended by Commission Regulation (EC) No 859/2009, OJ L 247, 19.9.2009, p. 3

³ Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to eco-design requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council, OJ L 76, 24.3.2009, p. 17, amended by Commission Regulation (EU) No 347/2010, OJ L 104, 24.4.2010, p. 20

⁴ OJ L 93, 7.4.2009, p. 3–10

A technical, environmental and economical analysis ('preparatory study') has shown that (i) lamps are placed in large quantities on the internal market, (ii) the main environmental impact in the life cycle of the lamps is the electricity consumption and for certain lamp types, mercury content. The impacts are considered significant, (iii) there is a wide disparity in the environmental impacts of the lamps currently on the market, and (iv) technically cost-effective solutions exist that could lead to significant improvements. Under Article 15 of Directive 2009/125/EC, directional lamps and light emitting diode lamps should therefore be covered by an ecodesign implementing measure.

Directive 2010/30/EU⁵ of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy related products establishes a framework for the Commission to develop delegated Regulations for labelling of energy-related products.

The draft Commission Ecodesign Regulation is accompanied by a Delegated Regulation for electrical lamps and luminaires establishing a harmonised scheme for the indication of energy efficiency and energy consumption by labelling and standard product information for the benefit of consumers. The labelling requirements also provide a dynamic incentive for manufacturers to improve energy efficiency and to accelerate the market take-up of energy efficient models.

The proposed energy labelling requirements replace Directive 98/11/EC⁶ with regard to energy labelling on household lamps. The scope is enlarged to all lighting lamps, including professional lamps and directional lamps which were excluded in the Directive.

It is proposed to align the introduction of the ecodesign requirements with the introduction of the new energy labelling in order to facilitate the implementation of the two measures and to guarantee the longest possible validity for the new energy label.

General context

Directional lamps are responsible for 30 TWh of annual electricity consumption (2007), and if current sales trends persist, it is expected that this consumption goes up to 50 TWh by 2020 without specific action. Impacts from production and distribution are minor compared to use-phase impact. The use-phase electricity consumption of these lamps can be reduced significantly in a cost-effective way.

A main reason for the persistent sales of low efficiency lamps is that end-users base their purchase decisions on purchase costs rather than life cycle cost of the product, a situation which is not helped by the often enormous purchase price difference between energy saving lamps and their less efficient alternatives. Cost-effective improvement potentials for the end-user are therefore often not realised. Another problem are split incentives, where for example a building owner who purchases and installs professional lamps aims for lower purchase costs, whereby the entities renting the space end up paying higher electricity bills.

Apart from energy efficiency, the preparatory study also identified mercury emissions as a significant environmental aspect. In general, mercury emissions are likely to decrease with the use of energy saving lamps, as less electricity needs to be produced in mercury-emitting coal-fired power plants. However, directional compact fluorescent and high-intensity discharge lamps contain mercury themselves, which, if they are not recycled, largely counterbalances the beneficial impact of the energy saving they achieve. It is therefore appropriate to maximise their mercury content in the Restriction on Hazardous Substances Directive

⁵ OJ, L 153, 18.6.2010, p. 1.

⁶ OJ L 71, 10.3.1998, p. 1

(2002/95/EC⁷), and to set product information requirements in this Regulation, informing users of the amount of mercury present in the lamp and what to do in case of lamp breakage. The Waste Electric and Electronic Equipment Directive (2002/96/EC⁸) ensures that Member States take action to increase the collection and recycling rates of these lamps so as to avoid that their mercury content escapes to the environment, and users are informed via the crossed-out bin symbol about the need to collect them separately. Currently, the mercury contained in the yearly sales of mercury containing reflector lamps (less than 50 kg) is only a fraction of the total yearly mercury use and emissions in the EU (which are each in the order of several hundred tons per year).

Energy efficiency requirements for directional lamps are set in this Regulation on the basis of their energy efficiency index as proposed to be calculated in the revised energy labelling of lamps regulation. It takes into account only the useful luminous flux of these lamps (that emitted in a 90° angle) as opposed to non-directional lamps where the entire flux is considered as useful.

The objective of the proposed Regulation is to trigger the market transformation needed to realise the improvement potential. Compared to a business-as-usual scenario it is estimated that the proposed Regulation will lead to annual use-phase electricity consumption savings (EU-27) of about 25 TWh by 2020, corresponding to an annual reduction of some 9.8 Mt of CO₂ emissions and savings in electricity consumption of about €3.8 billion. These savings are close to the final electricity consumption of Ireland in 2006 and are therefore considered significant.

Consistency with other policies and objectives of the Union

Increased market take-up of energy-efficient lamps, through the introduction of new energy efficiency classes and the existing and possible new ecodesign requirements, will contribute to achieving the 20% energy savings potential anticipated by 2020 in the Energy Efficiency Action Plan (COM(2006) 545). Furthermore, implementation of the Directive 2009/125/EC will contribute to the EU's target of reducing greenhouse gases by at least 20% by 2020, or 30% if there is an international agreement that commits other developed countries to comparable emissions reductions. The proposed Regulation is a concrete contribution to this process and is in line with the Commission Action Plan on Sustainable Consumption and Production and Sustainable Industrial Policy.

The promotion of market take-up of efficient lamps complies with the Lisbon and renewed Sustainable Development Strategy as it will encourage investment in R&D and make for a level playing field. It is also in line with the Sustainable Consumption, Production and Industrial Policy Action Plan (COM(2008) 397).

The European Economic Recovery Plan (COM(2008) 800) mentions energy efficiency as one of the key priorities, in particular the promotion of the rapid take-up of products offering a 'high potential for energy savings', such as lamps.

Finally, it will contribute to the objective of decoupling economic growth from the use of resources set out in the Europe 2020 strategy (COM(2010) 2020) under the flagship initiative: 'resource efficient Europe'.

The Energy Labelling Framework Directive 2010/30/EU provides a framework for the Commission to adopt delegated acts for labelling of energy-related products. The draft

⁷ OJ L 37, 13.2.2003, p. 19.

⁸ OJ L 37, 13.2.2003, p.24.

Commission Delegated Regulation for electrical lamps and luminaires complements the minimum energy efficiency requirements of this Regulation.

2. CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

• Consultation of interested parties

Consultation methods, main sectors targeted and general profile of respondents

International and EU stakeholders and Member State experts were consulted from the very beginning of the preparatory study (see below for details), and ecodesign requirements, (together with energy labelling) were discussed in the "Ecodesign Consultation Forum", which is established by the Ecodesign Framework Directive 2009/125/EC. The Consultation Forum is composed of the experts of the Member States and a balanced representation of stakeholders, namely environmental and consumer NGOs, retailers and manufacturers. During the meeting of the Consultation Forum of 5 July 2011 the Commission staff presented a working document suggesting ecodesign requirements for directional lamps and an energy efficiency ranking for all lamps. A technical subgroup of the Forum, composed of the Forum members having expressed interest, discussed technical details in relation to the draft ecodesign and energy labelling regulations on 23 September 2011.

All relevant working documents were circulated to the experts and stakeholders, and published in the Commission's CIRCA system alongside the stakeholder comments received in writing. They were also uploaded to DG Energy's EUROPA website and sent to a functional mailbox of the European Parliament for information. In addition, the initiative was discussed on many occasions at meetings of Commission staff with stakeholders and Member States, but also with international partners as e.g. International Energy Agency, Australia and the USA. The draft delegated regulation was notified to the WTO/TBT, to ensure that no barrier to trade is introduced.

Summary of responses and how they have been taken into account

The positions of the main stakeholders during and after the Consultation Forum meeting on 5 July 2011 in reaction to the Commission's Working Documents can be summarised as follows.

Stakeholders supported the general approach to set mandatory efficiency requirements under the Ecodesign Directive and the energy efficiency requirements under the Energy Labelling Directive.

Also the Commission proposal on timing of the minimum requirements in 3 tiers (2013-'14-'16) was generally supported.

There was broad consensus, explicitly by Member States, green NGOs and professional lighting designers and with no contrasting view from industry, that the label and the minimum requirements should be as far as possible technology-neutral.

As regards the ambition level of the COM proposal for minimum requirements, there was a comment from industry, who did not want to include explicit Stage 3 requirements. Some Member States and NGOs, however, disagreed and wanted to take a clear long-term vision on the ambition level. There was general consensus that requirements should be set in such a way that retrofit lamps remain available to service all existing installations.

No stakeholder – except initially the industry who could eventually agree to the alternative— supported the COM proposal to apply a form of the lamp label to household luminaires, because it was found incomprehensible. Nevertheless, a warning label for luminaires that are

not compatible with energy efficient lamps was deemed necessary. The lighting control manufacturers (CECAPI) pointed out that the best way forward to achieve compatibility of all equipment with energy saving lamps is standardisation, which is already ongoing.

Stakeholders were supportive to include light emitting diode (LED) lamps in the ecodesign measure, but with functional performance requirements to avoid the mistakes from the past with poor-quality compact fluorescent lamps (CFLs). Industry stressed that these requirements should be in line with global legislative practice in order not to have a negative effect on competitiveness, and they should not make the products too expensive. Consumers on the other hand insisted on maintaining a high level of ambition on functionality requirements, particularly on lifetime-related parameters. They demanded that product information requirements be standardised visually as much as possible to help consumers compare lamps, a proposal rejected by industry on grounds of corporate identity and the need to be flexible on small-size packaging.

On the ‘if’ and ‘how’ of including LED modules integrated into luminaires, the opinions were diverging.

Some Member States raised the issues of a possible health risk of ultraviolet (UV) emissions from certain light sources. It was concluded that the opinion of the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) would be taken into account.

On the subject of halogen lamp control gear, it was concluded that there was in principle no problem to achieve a high level of efficiency that essentially phases out magnetic control gear to the benefit of electronic ones.

- **Collection and use of expertise**

Scientific/expertise domains concerned

External expertise was mainly gathered through preparatory studies providing a technical, environmental and economic analysis, which were carried out by consortia of external consultants on behalf of the Commission's Directorate General for Energy and Transport (DG TREN, today DG Energy). Additionally, a scenario analysis of various policy options was developed for the Impact Assessment by an external consultant.

Methodology used

The methodology followed the provisions of the Directive, in particular its Article 15 and Annexes I and II. The technical, environmental and economic analysis followed the structure of the 'Methodology Study Eco-design of Energy-using Products' developed for the Commission's Directorate General for Enterprise and Industry (DG ENTR) and endorsed by stakeholders.

Main organisations/experts consulted

The preparatory study was conducted in an open process, taking into account input from relevant stakeholders including manufacturers and their associations, environmental NGOs, consumer organisations, EU/EEA Member State experts, experts from third countries and international organisations such as the International Energy Agency (IEA).

Summary of advice received and used

The technical, market and economic analysis carried out for the preparatory studies resulted in recommendations for ecodesign requirements on directional lamps, halogen lamp control gear and luminaires. These recommendations were used, in conjunction with the most recent available data from the industry for suggesting possible ecodesign requirements for

directional lamps, halogen lamp control gear and luminaires to the Consultation Forum. The comments of the Members of the Consultation Forum were addressed during the impact assessment, including continuous collaboration with various individual stakeholders and experts.

The existence of potentially serious risks with irreversible consequences has not been mentioned by any stakeholder nor were any identified during the preparatory work.

Means used to make the expert advice publicly available

The preparatory studies were accompanied by dedicated websites where interim results and further relevant materials were published regularly for timely stakeholder consultation and input. Written inputs from stakeholders are listed in the final reports of the preparatory studies. The study websites were publicised on DG ENER and DG ENTR specific ecodesign websites. Open consultation meetings for directly affected stakeholders were organised by the the contractors for discussing the preliminary results of the studies.

The written input received during the Consultation Forum process is available on the Commission's CIRCA portal. The minutes of the Forum meeting on directional lamps are available on the DG ENER website.

• **Impact assessment**

The outcome of the impact assessment can be summarised as follows.

Several policy options have been considered.

Option 1: No EU action

This option implies that a major part of the improvement potential would not be realised, because the barriers to improving the environmental performance of directional lamps would continue to persist. Furthermore, Member States could proceed to take individual, non-harmonised action. This would hamper the functioning of the internal market and lead to high administrative burdens and costs for manufacturers, contrary to the goals of the Ecodesign Directive. In addition, the mandate from the legislator would not be respected.

Option 2: Self-regulation

No initiative for self-regulation on the products within scope has been brought forward under Annex VIII of the Ecodesign Directive.

Option 3: Energy labelling delegated Regulation

This option was modelled but ultimately discarded as it is estimated that it would not achieve the expected savings, just as Directive 98/11/EC achieved only a minor improvement in efficiency (1% per year).

Option 4: Ecodesign implementing Regulation

This option was modelled but ultimately discarded as it would fail to tap the additional saving potential of the most efficient remaining technologies, as consumers would have no indication of their energy efficiency (most of them would be in A-class and many would not be labelled).

Option 5: Ecodesign implementing Regulation and Energy Labelling delegated Regulation

This option allows improving the environmental impact of directional lamps by setting minimum efficiency requirements and allows guiding consumers towards the use of the most energy efficient lamps with help of an updated energy label. Furthermore, the EU Ecolabel can be voluntarily applied on the most environmental-friendly lamps.

Following the principle of proportionality in conducting the analysis, Options 1 and 2 were assessed qualitatively and discarded for the detailed analysis, and the impact assessment focussed on Options 3, 4 and 5. In accordance with Article 15(4) and 15(5) of Directive 2009/125/EC, the impact on the environment, consumers and manufacturers was also assessed in two sub-options of Option 5, which both assumed three stages for the introduction of requirements distributed over a period of 4 years, mainly varying in the ambition level of the final stage of the requirements. The less ambitious sub-option allowed the continued sales of mains voltage halogen lamps with limited efficiency beyond 2016, the more ambitious sub-option raised the requirements to a level that only current-day compact fluorescent lamps and light-emitting diode lamps can attain.

It was found that Options 3 and 4 achieve only a slight improvement compared to the Baseline scenario. The less ambitious sub-option under Option 5 brought 7 TWh of yearly savings in 2020, while the more ambitious sub-option resulted in 25 TWh.

Conclusion

It has been concluded that ecodesign requirements for directional lamps should come into force according to the more ambitious sub-option of Option 5, as described below in "Summary of the proposed action".

This, together with the energy labelling requirements for general lighting lamps, would provide the appropriate balance between a reduced environmental impact and expenditure for the user/consumer (due to reduced electricity consumption), on the one hand, and possible additional burdens for manufacturers (in particular due to unplanned re-design) on the other hand. In particular:

1. a clear legal framework which leaves flexibility to achieve the high efficiency levels of the later stage already earlier (before they come into effect);
2. no significant impacts on the competitiveness of industry, including SMEs, due to the costs on product re-design and re-assessment of conformity that are spread over 4 years with higher efficiency requirements imposed only in a later stages;
4. no negative impact on employment in the EU;
5. considerable reduction of life cycle environmental impact of directional lamps related to the use-phase electricity consumption;
6. removing of barriers for market take up of high-efficient directional lamps and ensure proper functioning of the internal market;
7. no significant administrative burdens for manufacturers or retailers;
8. positive impact in the internal market and on the international trade through the level playing field created by requirements that apply equally on all manufacturers;
9. a purchasing cost increase which is fully compensated by savings during the use-phase of the product within a short pay back period, including the foreseen impact of economies of scale to reduce the purchase price of high-efficiency technologies.

3. LEGAL ELEMENTS OF THE PROPOSAL

• Summary of the proposed action

This ecodesign regulation introduces:

- minimum energy efficiency requirements for directional lamps, phasing out the least efficient filament lamps while keeping suitable alternatives on the market for all kinds of lighting installations;
- functionality requirements for directional lamps and non-directional LED lamps, which will ensure that consumers switching to the more efficient alternatives will not be disappointed in their quality;
- requirements for energy saving lamps and lighting equipment (controls and luminaires) to be as much as possible compatible with each other;
- product information requirements for all technologies within scope that will ensure that users are appropriately informed of the performance and compatibility of the lighting equipment they purchase.

It is supported by a delegated act on lamp energy labelling that extends the scope of the existing labelling to directional lamps and introduces labelling of luminaires showing the energy efficiency of the lamps with which they are compatible.

• Detailed explanation related to certain provisions

Article 2 (3), Annex I.1, Annex IV.4 Special purpose products

The new definition of special purpose products is part of the general effort to make this product category more concrete, to decrease the risk of the public buying special purpose lamps for general lighting, and to ease the work of market surveillance, without putting excessive burden on industry.

In earlier drafts, lamps with very low light outputs and with a high UV component were allowed to be special purpose with no information on the packaging. However, unlike coloured lamps, such lamps cannot be easily distinguished by the public from normal lamps, so a warning on the packaging is deemed necessary (they are covered together with the other special purpose products).

Article 2 (19) LED lamp definition

The Russian doll-like definition of an LED lamp ensures that it can mean a single LED module (end-user replaceable or not), a self-ballasted retrofit lamp, or an entire integral luminaire. Such a broad definition is needed also to remain consistent with the LED definition in Regulation 244/2009.

Article 7 Revision

Three years is short between entry into force and revision (2015), but it is advisable to examine the rapid progress of LED technology, and also to do the review more or less in parallel to the review of Regulation 244/2009 in 2014, to improve the complementarity of the two Regulations.

Annex III.1.1 Energy efficiency requirements for directional lamps

The same method is used in this Regulation and in the energy labelling regulation to establish the energy efficiency index of a lamp: comparing the power of the lamp corrected for control gear losses and other parameters to a reference power. The reference power is obtained from

the useful luminous flux of the lamp, which is the flux in a 90° or 120° cone. For more details, see the explanatory memorandum to the energy labelling delegated act.

The guiding principle in table 2 setting maximum EEIs is that the highest efficiency is aimed at for lamps other than filament lamps, however there are existing installations which are only compatible with certain categories of filament lamps. Therefore the efficiency levels for filament lamps are less stringent so that the existing stock can be fully serviced with slightly enhanced lamps, with no empty shelves syndrome (hence the introduction in two stages of the requirements affecting the most numerous categories).

Application date	Maximum energy efficiency index (EEI)			
	Mains-voltage filament lamps	Other filament lamps	High-intensity discharge lamps	Other lamps
Stage 1 (2013)	<p>If $\Phi_{\text{use}} > 450 \text{ lm}$: 1.75</p> <p>Phases out E-class incandescent reflector lamps (R50 R63 R80) and poor mains voltage halogens with high lumen outputs, but leaves the more efficient bulb-shaped halogen reflector lamps on the market.</p>	<p>If $\Phi_{\text{use}} \leq 450 \text{ lm}$: 1.20</p> <p>Poor conventional low voltage halogen lamps (D class) are phased out even at low lumen outputs already in Stage 1.</p> <p>If $\Phi_{\text{use}} > 450 \text{ lm}$: 0.95</p> <p>Phases out quality conventional low voltage halogens starting with high lumen outputs (12V 50W MR16 lamp). Leaves only B-class enhanced lamps (infrared coated or xenon filled)</p>	0.50 Phases out the least efficient (B-class) HIDs	0.50 Phases out the least efficient (B-class) CFLs and LEDs.
Stage 2 (2014)	1.75 Completes the phase-out started in Stage 1, now applying to low lumen output lamps.	0.95 Completes the phase-out started in Stage 1, now applying to low lumen output lamps.	0.50	0.50
Stage 3 (2016)	0.95 Raises the requirement to a level that only LEDs, CFLi or halogens with integrated transformer can achieve today. *	0.95	0.36 Raises the requirement to a level that only the best HID lamps achieve today **	0.20 Raises the requirement to a level (A+) that only the best LED lamps achieve today.

* The applicability of this requirement on mains voltage filament lamps is subject to strong criteria set out under the table and to be checked at the revision of the measure in 2015.

** Being a mature technology, high-intensity discharge lamps are unlikely to become as efficient as the best LED lamps today, however they are still needed in many applications which require high luminous flux not yet attained by LED alternatives.

Annex III.1.2 Energy efficiency requirements for lamp control gear

The requirement on no-load power applies from stage 2 only, as luminaire manufacturers need time to make necessary adjustments to the luminaires using the lamp control gear. The lamp control gear which is cut off from power when the light is switched off does not have to comply with a no-load requirement meaningless in its case.

Annex III.2.1, 2.2, 2.3 and Annex IV.3. Functionality requirements including compatibility

The requirement to be as much as possible compatible with A-class lamps applies the same way to dimmers and other control devices, control gear and luminaires. It applies also to energy saving lamps (CFLs and LEDs) in that they should be as much as possible compatible with lighting installations operating filament lamps. Compatibility is defined in a generic way in the Regulation and will be specified in harmonised standards for concrete cases, while recognising that full compatibility is very difficult to achieve.

The requirement on dimmers will help users notice that with many dimmers, when they turn down the light to the minimum dimming level, they have not necessarily switched it off, and it continues to consume more electricity than in off-mode.

The requirement that only the most efficient compatible lamp may be sold together with a luminaire is aimed at ensuring a wider market uptake of efficient lamps.

Annex III.2.2. Functionality requirements for non-directional and directional LED lamps

The reason for covering non-directional LED functionality requirements in this Regulation (rather than remaining focussed on directional lamps) is that in the non-directional lamps regulation (244/2009), we could not set LED functionality requirements yet, because the market was not developed enough in 2008. Only the efficiency and product information requirements applied to non-directional LEDs in that regulation, which also explains why such requirements are only set for directional LEDs in this Regulation.

Measuring lumen maintenance and lamp survival until the end of the very long rated life of LEDs would have put extreme burden on market surveillance and would have reduced the speed of introduction of new technologies. To remain practicable, no test should take longer than a year.

Annex III.1.2. Table 8 Narrow beam LED multiplication factors to luminous flux requirement for equivalence claims involving power

Spill light has some use in medium to wide beams (contributes to uniformity on the floor and to total room illumination), but is useless in narrow beams whose only purpose is accent lighting. At such beam angles, technologies emitting no spill light (such as LED) should be allowed to have less total light output.

Annex IV.2. Verification procedure for LED lamps and LED modules that are not meant to be replaced in the luminaire by the end-user

In order to tackle the fact that LED modules cannot always be easily extracted from LED luminaires for testing, a detailed step-by-step procedure has to be set up, in which testing the whole luminaire as a lamp is only an option if the luminaire manufacturer specifically allows it, or if all other approaches fail.

- **Legal basis**

The proposed Regulation is an implementing measure pursuant to Directive 2009/125/EC, in particular its Article 15(1). The Directive is based on Article 95 of the Treaty.

- **Subsidiarity principle**

The adoption of ecodesign measure for directional lamps by individual Member States' legislation would lead to obstacles to the free movement of goods within the Community. Such measures must therefore have the same content throughout the Community. In line with the principle of subsidiarity, it is thus appropriate for the measure in question to be adopted at Community level.

- **Proportionality principle**

In accordance with the principle of proportionality, this measure does not go beyond what is necessary in order to achieve the objective. It offers requirements which act as an incentive for technology leaders to invest on high-efficiency lamp technology. It also leads to higher savings than any other conceivable option with minimum administrative costs. Its impact is reinforced by the introduction of an energy label on electrical lamps and luminaires replacing the implementing Directive 98/11/EC.

- **Choice of instruments**

Proposed instruments: regulation.

Other means would not be adequate for the following reason(s).

The proposed form of action is a Commission Regulation (implementing Directive 2009/125/EC), because the objectives of the action can be achieved most efficiently by fully harmonised requirements throughout the EU (including the date for entry into force), thus ensuring the free movement of complying equipment. No costs arise for national administrations for transposition into national legislation.

4. BUDGETARY IMPLICATION

The proposal has no implications for the Community budget.

5. ADDITIONAL INFORMATION

- **Review/revision/sunset clause**

The proposal includes a review clause.

- **European Economic Area**

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.