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COMMUNICATION FROM THE COMMISSION

**Market assessment on mains-voltage lamps as required by Commission Regulation (EU)
No 1194/2012**

1. INTRODUCTION

Commission Regulation (EU) No 1194/2012¹ contains minimum energy efficiency requirements for directional lamps, light emitting diode lamps and related equipment. These ecodesign requirements are introduced in stages, with each stage adding new or more stringent requirements compared to the previous stage. The last one, stage 3, is due to apply from 1 September 2016 and will require a minimum energy efficiency of 0.95 for filament lamps, 0.36 for high-intensity discharge lamps and 0.2 for all other lamps, expressed using an energy efficiency index (EEI). Directional mains-voltage halogen lamps currently on the market do not meet the requirement for filament lamps, and stage 3 will therefore prohibit their placing on the market.

To ensure that these halogen lamps are not phased out without an adequate replacement option, Regulation 1194/2012 states that stage 3 will apply to mains-voltage filament lamps only if *'no later than 30 September 2015, evidence is produced by the Commission through a detailed market assessment and communicated to the Ecodesign Consultation Forum that there are mains-voltage lamps on the market that are:*

- *compliant with the maximum EEI requirement in stage 3;*
- *affordable in terms of not entailing excessive costs for the majority of end-users;*
- *broadly equivalent in terms of consumer-relevant functionality parameters to mains-voltage filament lamps available on the date of entry into force of this Regulation [3 January 2013], including in terms of luminous fluxes spanning the full range of reference luminous fluxes listed in Table 6 [of Regulation 1194/2012, ranging from 90lm to 1000lm];*
- *compatible with equipment designed for installation between the mains and filament lamps available on the date of entry into force of this Regulation according to state-of-the-art requirements for compatibility.*²

This Communication fulfils the legally required market assessment of the available mains-voltage replacement lamp options on the market. It is based on a technical market overview³ produced for the Commission by external technical consultants and presented to the Ecodesign Consultation Forum.

2. COMPLIANCE WITH THE MAXIMUM ENERGY EFFICIENCY INDEX

The most likely replacement option for halogen lamps are light emitting diode (LED) lamps, which are currently transforming the lighting market. Around 70% of all models of LED

¹ Commission Regulation (EU) No 1194/2012 of 12 December 2012 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, OJEU L 342/1.

² Cited from Regulation 1194/2012, Annex III 1.1., p.11 — inclusions in square bracket have been added for increased readability.

³ The technical market overview is publicly accessible on the Commission's website: <https://ec.europa.eu/energy/sites/ener/files/documents/Draft%20Final%20Market%20Assessment%20data.pdf>. It was presented to Ecodesign Consultation Forum meeting on 25 June 2015.

lamps found on the market meet the maximum EEI requirement of stage 3, giving consumers plenty of choice in replacement options. The proportion of these compliant lamps available on the market is expected to increase further due to the continuing improvements in LED technology.

3. AFFORDABILITY OF REPLACEMENT SOLUTIONS

Directional LED lamps offered on the EU market are affordable in terms of both retail prices and life-cycle costs.

For retail prices, although the initial investment cost of LED lamps is higher than that of directional mains-voltage halogen lamps, observed prices range from ca. €1.80 to €18 depending on brand, point of sale and type of LED lamp. Most LED lamps cost under €10. These prices are expected to continue to decrease due to technological developments in LED technology; retail price decreases of up to 25% were observed on the EU market in the first four months of 2015.

LED lamps' lower energy consumption, often around a factor of 5, leads to significant savings in terms of life-cycle costs for consumers, even if higher retail prices are taken into account. Pay-back times of around one year or less are currently possible, and in nearly all cases the savings from replacing directional mains-voltage halogen lamps with LED lamps will cover the initial cost.

4. BROAD EQUIVALENCE IN TERMS OF FUNCTIONALITY

LED lamps offer a fully functionally equivalent replacement option for ca. 90% of directional mains-voltage halogen lamp models on the market. These LED lamps fulfil the functional ecodesign requirements of Regulation 1194/2012, including a sufficient colour rendering index (CRI) of $CRI \geq 80$, with some LED lamps reaching a high CRI of above 90. In general, the variety of LED lamps in regard to lumen levels, beam angles, colour temperature and models exceeds the variety of directional mains-voltage halogen lamps on the market.

For the remaining 10% of directional mains-voltage halogen lamp models on the market, LED lamps offer a broadly functional equivalent replacement option. Consumers may have to compromise on minor characteristics such as the beam angle, but most would not notice a difference. Another option is to use adapters for the socket type to achieve full equivalence with an LED lamp with a different cap.

5. COMPATIBILITY WITH EQUIPMENT

Replacement LED lamps are in general compatible with the equipment used for directional mains-voltage halogen lamps. An exception is their compatibility with dimmers; while all halogen lamps are dimmable, only certain LED lamps on the EU market work with the trailing edge and leading edge dimmers that were available on the market on 3 January 2013, when Regulation 1194/2012 entered into force. These dimmable LED lamps also fulfil all the requirements.

The mandatory information requirements of Regulation 1194/2012 already require that consumers be informed of which dimmers, if any, each LED lamp model is compatible with. This allows consumers to purchase the right replacement option for them.

6. CONCLUSIONS

This market assessment shows that directional mains-voltage LED lamps that comply with the minimum energy efficiency requirements under Regulation 1194/2012 are available, affordable, equivalent in terms of functionality and compatible with equipment used between the mains and the lamp.

The requirements for stage 3 of Regulation 1194/2012 to apply to mains-voltage filament lamps have therefore been met.