

Test of LED retrofit lamps: good results, but big quality differences

Policy measures needed for lamps - and for luminaires

The market of LED retrofit lamps is growing rapidly. Working Documents on Ecodesign requirements for LED lamps and directional lamps and on a new energy label for lamps and luminaires are discussed in the Consultation Forum in July. The fast adoption of the Ecodesign requirements would ensure a good level of quality for LED retrofit lamps, which is important for consumers to build trust in LED technology. Also the energy label for lamps should be agreed on soon, whereas the proposed energy label for luminaires does not address the efficiency of luminaires and should be dropped in favour of a label based on the luminaire efficiency factor and covering all luminaires (tertiary, residential, street lighting).

Test of 14 LED lamps

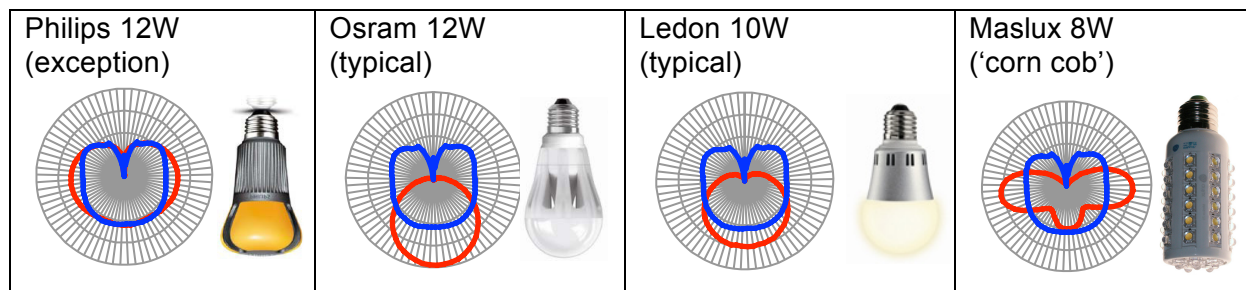
14 LED retrofit lamps were tested in Switzerland. Good results were obtained, but yet the quality differences on the market are huge. The best lamps can be found on www.topten.eu.

Good news from the test results:

- High Efficiency: most LED retrofit lamps are as efficient or better than compact fluorescent lamps (about 60 lm/W). The best efficiency measured was 94 lm/W.
- All tested lamps have warm white light similar to incandescent (2600 – 3500 Kelvin).
- Some LED retrofit lamps on the market already replace 60 Watts incandescent lamps. Replacements for 75 W and even 100 W bulbs are expected to enter the market this year.

High quality is not guaranteed though:

- Four of the 14 tested lamps had an unsatisfying colour rendering index (CRI) between 55 and 68. The CRI informs about the quality of the light compared to daylight. It is good (value 80 or higher) for all household lamps with the exception of some LED lamps. The CRI only needs to be declared on the internet, but not at the point of sale. The Ecodesign requirements in discussion set a minimum CRI of 90 for LED retrofit lamps.
- Not all lamps are of high efficiency: the lowest measured value was 34 lm/W.
- With one exception the light distribution of LED retrofit lamps (red line) differs from incandescent lamps (blue line). More light is emitted down and less to the sides and up. 'Corn cob' LED retrofit lamps emit most light to the sides.



More information

- Best LED retrofit lamps on the European market: www.topten.eu
- Test of 14 LED retrofit lamps in October 2010 – Summary of Test Results (in English). PDF download at: http://www.topten.eu/uploads/File/Test_LED-lamps_Oct2010.pdf
- Current Working Documents on <http://env-ngo.eup-network.de/> (lot 19)
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