*042 WG-LC1 CECAPI comments to Task3-4-6 Eco\_prep\_study 11th June 2015*

**CECAPI observations to the draft reports of Task 3, 4 and 6 of**

 **Lot 8/9/19 Ecodesign Preparatory Study on Light sources**

# Task 3

3.2.2 Standby hours

Page 49:
“sensors” shall be removed of standby hours definition, or the definition adapted as when the load is turned off, the sensor is not in standby, it is watching if someone enters the detection range, so in operating time

3.4.5 Standby power and No-load power

Page 63:

Smart lamps: CECAPI proposes that the energy consumption in stand-by mode of Smart lamps shall be taken into consideration in the new regulation.

5.1.4 Philips position paper on test methods for flicker and stroboscopic effects

Page 82
CECAPI wants to emphasize that SSL7A does not fit to Europe needs.

7.2.3 Techniques for dimming of LEDs at dimmer level

Page 97
CECAPI believes that the universal dimmer can be deleted from the list. This dimmer only uses a leading or a trailing edge wave shape.

The 3 wires dimming method can be confusing: 3 wires wording is generally used to describe one specific electrical connection of the dimmer, having an influence on internal power supply, whereas most phase cut dimmer uses 2 wires connection having the load in series with dimmer.

Page 98
Inconsistency: some leading edge dimmers, particularly triac based one, will not be able to perform correctly with LED lamps, due to several technical issues (minimal power load, standby mode, EMC concerns,...)

The list of compatible LED loads is not efficient as lamp manufacturers often change the internal circuit of their lamps and the compatibility lists are not adapted accordingly.

7.2.4 Dimming of LEDs operating on existing low-voltage Transformers

Page 101:
In wireless dimming method, the consumption level of the standby mode shall not be left aside, Some studies clearly show that the communication components severely hinder the energy efficiency of the load, particularly in stand-by periods.

Ferro magnetic/MLV transformers are being replaced due to their lack of efficiency in favour of ELV, and thus the forward looking solutions should be focused on the most efficient solution

Page 102:
Compatibility lists: The list of compatibility evolves so fast that sometimes listed item just do no longer exists

7.2.5 Power supply for dimmers and consequences for LED control gears

Page 103: 2nd paragraph
the sentence on the need of additional wiring needed for trailing edge is both mostly incorrect and misleading and shall be deleted to avoid introducing an illegitimate bias for leading edge dimmers. This sentence is also applicable for leading edge dimmers using µ-controllers.

7.2.6. Dimming curve and minimum and maximum dimming levels

Page 104: CECAPI proposes the following parameters to be included in a future regulation:

- Mandatory dimming range of dimmable lighting products from 1-100% as is the case for every incandescent lamp.

- Maximum 5% light output at 45° phase conduction angle and minimum 90% light output at 120° phase conduction angle in order not to lose light output when the lamp is placed on a 2-wire dimmer and set at the maximum setting.

# Task 4

## 2 LED Lighting technical description and time-line

### 2.7.4 LED Control Gear and Dimming:

Page 53: Trailing edge and Universal dimmers do not provide a solution to flickering in off and on-state. In Off-state this depends on the current level passing through the LED without emitting light. In dimming mode when switching of the voltage the voltage across the lamp discharges too slowly making the dimmer losing the synchronisation. The solution is for LED and Control Devices manufacturer to agree on an interface allowing proper operation of both LEDs and Control Devices. However, it has been documented that Trailing edge and Universal dimmers do reduce the inrush current and repetitive currents, generating less disturbances on mains and less stress for LED lamp and dimmer components (IEC TC 77 EMC documents). These specific dimmers represent the state of the art technology regarding phase cut dimmers.

CECAPI is aware about the use of “external adapters” to reduce flickering in the case of the neutral wire is not pulled to the switch. It is worth to be noted that this solution, external to the lamps, does not allow tailoring the adapter for the maximum energy efficiency of the system.

2.7.7 LED Control Gear, BAT characteristics

It is important to point out that Control Gear Efficiency varies depending on the load. What is the load that has been used to calculate the highest energy efficiency?

### 2.9 Differences between LED and other light sources:

LEDs have indeed higher lifetimes when tested in lab conditions. In real life situations it still has to be proven that the lifetime claims can be achieved. As an example we can highlight that according to the immunity standard of LED’s EN 61547 lamps below 25W only need to withstand surge pulses of 500V Line to Line and 1000V Line to Earth, while according to the Generic EMC standards EN 61000-6-1 the minimum level for surge in the residential environment has been set to 1kV Line to Line and 2kV Line to Earth. Comparable tests between incandescent lamps and LED retrofit lamps towards these tests clearly show that the incandescent lamps withstand much better the transients occurring in real life conditions

Compatibility issues and bad operations can occur not only with already installed control devices (including dimmers). As no compatibility interface standards or requirements exist today, it is not possible to predict if a well-designed LED dimmer or LED control devices will work properly with a LED.

A simple change of component in an LED, during its production cycle, can generate bad operations with the Control devices and this is independent from the quality and the good design of a LED control device.

## 4 Smart Lamps

## 4.3 Aspects of smart lamps that could play a role in regulating them

Potential perturbation of grid by smart lamps is not quoted. According to various criteria, from harmonic to PLC, the smart lamps could be source of perturbations.

## 4.6 Conclusion

The conclusion is disputable as heating and air conditioning methods feature a strong hysteresis and will hardly be managed "on the go", as a sensor build in the lamp detecting the presence /absence of a user is probably not the most fit solution for managing those functions.

From an energy efficiency point of view, it is more relevant to mutualise the “smart” function at room or zone level. Having the “smart” function, allowing for energy control, spread in every lamps in a home or a building, means multiplying RF receivers and stand by consumption. In case of cloud connection, additional energy for the router is needed.

Also in case of connection to an Energy Management System, Open systems should be preferred.

CECAPI suggests that this part of the study be consistent with the study on going on “Smart Appliances”

The conclusion on lighting within the preparatory eco-design study on smart appliance should be taken into consideration.

# Task 6

CECAPI points out the following:

* The cost for electrical energy is not consistent throughout the study
* It is assumed that in 2020 the cost of electrical energy is the same than today.
* In some calculations a rebounce effect was assumed and in some not.
* Sometimes control gears which are not state of the art regarding efficiency are used as a reference
* In point 2.2.9, the product service life of LED of 34 years do not seem realistic for a complete LED Light sources (including control gears ).
* In most residential installations were the neutral is not pulled to the switch, installation cost of additional wiring, of changing the control devices or the luminaire do not seem to be realistic.

Overall, it is difficult to estimate the effect of these inaccuracies on the document conclusions.