June 23, 2010

Market Transformation Programme
DEFRA
Ergon House,
Horseferry Road
London, SW1P 2AL

Dear Sirs

Re Formal Response to Supplemental analysis of Directional Lamps

We have carefully reviewed the papers for Tasks 1 to 3 and have the following comments particularly in the light of the meeting held on 9th June.

Task 1 Review of MEPS proposals from other countries.

While this material is of general interest the market conditions and building mix for other countries is quite different from the majority of Europe. While Australia has a similar technical infrastructure based on 240V they have no indigenous lamp manufacture capacity and are able to closely control imports as a means of regulating the lamps available in their market. The problems of inappropriate use of reflector lamps in domestic buildings is common to the European market however their proposals are not appropriate to Tertiary sector use of these lamps. As Europe is working closely with the majority manufacturers of lamps in this market we have less concern that energy efficient lamps are likely to be of higher output and therefore not achieve the energy savings intended. This is a matter for education of end users. Reading the MEPS proposals for Australia they do not believe they can clearly communicate these issues to their population.

Task 2 Definition of Reflector Lamps

2.1 Our comment here is the same as it has been throughout this stakeholder process. Reflector lamps are specified by beam angle with close attention paid to field angle. It is absolutely necessary to compare efficiency of output within these angles. Light falling outside the field angle is not of any real use and however lamps are measured there are significantly different performances for different effective angles.
We are happy with the table of 7 groups of nominal angles proposed by ELC and would support direct comparison of efficiency of lamps within these groups.

Much has been discussed regarding inappropriate use of reflector lamps in domestic lighting. In tertiary lighting these lamps are very specifically specified and used. It seems that there is no market data that separates domestic from tertiary sales so it is essential that the proposed legislation does not damage the correct and appropriate use of these lamps in the Tertiary sector because of inappropriate use in the domestic sector.

As was pointed out at the meeting on the 9th June the efficiency of Dichroic reflectors was not included in this report. I have not found any definitive figures however these coatings vary significantly between different lamp types and also show different deterioration rates over lamp life. This significantly effects the usable light exiting in the beam angle therefore has to be considered.

The discussion on LEDs omitted the fact that, to achieve a comparable range of beam angles to the table provided by ELC secondary optics are necessary. Typically these are described as “lenses” but in fact are a combined lens and reflector using the principle of total internal reflection to gather scattered light from the LED into the beam. Again the efficacy of this technique is dependent on materials used and maintenance of the external surface of the optic, any degradation by dirt or aging immediately renders the internal reflection inoperative.

2.2 The application of correction factors has become somewhat arcane as was pointed out. If measurements are taken and specified at a systems level and in proper respect of the declared beam angles of the lamps the majority of these “correction factors” can be dispensed with.

We disagree that all forward light is “Useful Light”. The useful light is that that falls within the designed beam and field angles of the specific lamp. Certain lamps in this class have significant “light leaks” out of the field angle that need to be contained and therefore effectively lost in baffles within fittings.

We strongly agree that “Glare” is managed within the fitting design. In some instances what might otherwise be considered as “glare” is actually desired “sparkle” Please see attached image as an example of this use of dichroic reflector lamps. This has been a major design feature used for he past 20 years, lamps capable of providing these effects are still required in the market. The image also shows how reflector lamps can be effectively used to provide general illumination.
2.2 Correction factors for reflectors. We agree that this is not a rational way of determining efficacy of reflector lamps. As pointed out if Goniophotometry is not to be used then with an integrating sphere comparisons must be made with standardised lamps of the same beam angle as is the lamp that is being measured. There is no reason to apply different correction factors for different types of light source this process is supposed to be technologically agnostic. The issue is how much light is available within the beam and field angles of the lamp.

Conclusions: The method of measuring now has further implications as, for tertiary use in the UK from October 2010 lamp efficiency must exceed 22 lumens per watt to meet the revised Building Regulations. We cannot have separate methods for MEPS and Building Regulations!

Task 3 Stock models

Our major concern is that there is no reliable method of determining the end use of lamps. The expectation from PLDA is the majority of good quality lamps are going into the Tertiary sector and cheap lamps that are not fully reflected in the figures presented are going into the domestic sector. With the cheap lamps being of poor
quality and typically have short lives there will be a significant error in the calculations for the number of sockets currently in use as this is based on life expectation of quality lamps.

Finally

We are concerned that the effort of this legislation is not technologically neutral and seeks to impose LED based solutions to the energy reduction for these classes of lamps. This is based on exaggerated expectations of LED development over the forthcoming years. Notice needs to be taken of the graph presented at the meeting indicating the limited possibility for future efficiency gains and that LEDs are not suitable as direct replacements for small form factor lamps such as the MR16 due to heat dissipation required.

There is much to be gained by focussing on forcing the market into the best available technology in this field, i.e. THIR low voltage lamps. This means forcing the industry to reassess the GU10 base and provide conversions for ES and BC based reflector lamps. We have a serious base lock in situation that has been largely avoided in these discussions so far.

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