REVISION TO CFL SPECIFICATION /FINAL DRAFT/ FINAL COMMENTS

May 6, 2003

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Dear Ms. Gardner:

I would first like to express my appreciation on the organization of the Energy Star revision specification meeting that was held on April 29, 2003. It was great to meet in person so many that I have communicated with by phone, and the presentation on perceived color temperature was fascinating.

Included below are my final comments from the final draft revisions dated 3/15/03 as well as from the meeting.

Page 5, Sample Size, Lumen Efficacy, -3% Tolerance.

I fully support the sample size changing back to ten for most requirements for both the manufacturer's and consumer's benefit.

The exception to this is Transient, which could easily remain at 5 without effecting the quality of the test.

Please clarify which measurement DOE needs to see in a separated base up or base down table, and which can be averaged together with the entire ten.

Please clarify how the -3% tolerance should be calculated, and if it is used only for efficacy, or both efficacy and lumen maintenance. It is true that the measurement uncertainty is indeed higher when using two measured values at 100 hours (lumens and wattage) and only one measured value at the lumen maintenance periods (lumens and then a calculation.) However, it is clear from the most recent Round Robin NVLAP testing that the *core group of experienced labs* are within a 2% range of each other in these compact fluorescent measurements. Without torturing anyone on the details on how measurement uncertainty and the small 2% spread between the *experienced labs* are not the exact same thing, a -3% tolerance on both the LEF and lumen maintenance would cover any questions that may arise from both issues.

Page 5, Corr. Color Temp.

It is clear that there is no black and white answer to the question of actual color temperature vs. the human eye perception of color temperature. It is entirely possible to use the ellipse method that Mr. O'Roarke demonstrated to tighten the allowed color temperatures to be classified into "warm" vs. "cool" categories by using the CIE 31 x and y chromaticity coordinates rather than "correlated color temperature" alone. It is also clear that we have a lot of discussion to go to decide on the proper ranges since there is no published specification on it.

I strongly object, as do others, to the use of the term "failure" that LRC uses in their PEARL test reports when a color temperature is outside of the current spec. 2700K through 3000K range. The current specification clearly states "Average of 10 samples must be between 2700K and 3000K to market CFL as **warm, soft white equivalent**…" The wide variety of color temperatures available from CFL's should be embraced and used as a marketing tool. The manufacturers should not be forced to supply just the standard warm white version.

Please clarify the tests that a manufacturer must test to when submitting several color temperature models with the same ballasts, bases, and glass shapes.

Page 6, Starting Time, Operating Frequency

Is the criteria for passing Starting time *less than* 1.00 second, or *less then or equal* to 1.00 seconds as is standard to the rest of the specification when dealing with min. or max.?

Is the criteria for Operating Frequency 40 kHz or 40.0 kHz?

Page 7, Interim Life Test

While the randomly pulled data for 6000 hour rated lamps (reports from 120 models were used in this calculation) does support a tightening of the interim life test requirements, there has not been enough time to gather substantial data on the 8000 or 10,000+ rated models at this time. Given the wide variety of scatter plots depicting the end of life lamp behavior with such an evolving product, I am concerned that only allowing one failure will drastically reduce the amount of successful models accepted into the early labeling option.

Most labs are using the same set of lamps for lumen maintenance as for life testing for efficiency. While everyone is of course extremely careful handling the lamps during these tests, it is still a slight disturbance that would not likely happen in real life applications.

The answer to this of course would be to separate these tests which would cause a doubling of required samples in most cases, which usually and unfortunately translates

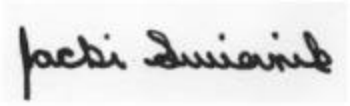
into more cost to the manufacturer. Doing so brings up the additional concern that minor, internal damage may have occurred during shipping, causing a lamp to drop out very prematurely.

Because most labs are using the same set of lamps for the lumen-related Initial 100 Hour tests, subsequent Lumen Maintenance tests, and then Life Testing, most premature dropouts are caught within the **initial 100 hour seasoning period.** This lamp would be switched out with a new lamp at that time to fulfill the initial 100 hour lumen sample requirements, thereby already culling out most preliminary failures from shipping damage. Separating the two sets would introduce these common "out of the box" failures directly into the average rated life test results. The probable rate of one or two failures before the 40% mark will greatly increase.

Given the improvements Energy Star will already gain with the change of the early labeling option point, I would suggest waiting until the next specification review before taking this large a step. This would allow for more accurate results to be examined for the higher life rated lamps.

In conclusion, I believe the Energy Star CFL program is on the right track tackling very difficult issues. I am confident that continued effort of all parties involved will eventually result in the balanced program that everyone can benefit from.

Thank you and best regards,



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