



January 24, 2003

Dear Mr. Karney:

My name is Jacqueline Swiernik and I have been working on performance testing of products relative to the Energy Star CFL Program since it began to gain ground in 1999. I can safely say we have had first hand experience testing the vast majority of the models on the website either currently or in the past. We have also done extensive off the shelf testing for utilities, large retailers, and manufacturers and concur with some of the findings of various after-market programs and still see a lot of problems in the CFL industry.

I would like to share some comments from an independent view and hope to add some valuable information while DOE is reviewing the next steps in the Energy Star CFL proposed revision.

Page 5, 10 Units per model - 5 base up/5 base down

This criteria was laid out in the earliest Energy Star specification and we have asked our clients to continue submitting this sample size in the intervening spec for several reasons.

1. It is true that most CFL's are designed to operate in the base up position and LM-66 does default to the base up orientation as the "standard orientation" in section 7.6. However, there has been much experimentation with amalgam and other chemical mixtures, and LM-66-00 has included a very informative annex (C) in testing the lamps in other base positions due to the widespread use of CFL applications. The CFL industry is still in experimentation stages and therefore data from both base positions are important.
2. A manufacturer should have no problem supplying a testing laboratory with additional lamps. All of our clients have been doing it since 1999. Complete testing as the current specification is written can be done with 26 samples or less.
3. Many packaging proofs are marketed to consumers showing graphics of CFL's in table lamps or other base down orientations. Data should back up this common mode of operation. No manufacturer wishes to package their lamps with "position restricted" statements on the label.
4. Many CFL's do indeed exhibit different characteristics in the base down position. However, you will rarely, if ever, actually see the proper FTC statement included on the packaging when results vary by more than 5%. The base down position needs to be tested for both the manufacturers' and the consumers' information and protection on all model types except reflectors.

The revised specification fairly includes the averaging of all ten samples. The footnote #1 on page 5 should be changed to reflect this. The footnote #2 covering "acceptable efficacy and lumen output measurement error is +/- 3%" should be clarified. Standard industry interpretation of this is (for example) 60 Lumens Per Watt +/- 3%. This is not the way the specification authors are calculating it, they are adding 3% lumens and then calculating the efficacy and/or lumen maintenance afterward.

#### Page 5 & 6, some requirements moved out from one to two decimal places

I personally feel this is unnecessary on any requirements except for power factor. (A power factor of 0.45 would round and pass a spec. of 0.5 and still be 10% off). Operating Frequency should return to one decimal place also.

#### Page 6, the use of time in Start and Run-Up Time

The specification and Part II of the Energy Star application where laboratories must fill out the required data does not agree regarding the use of "seconds" or "milliseconds" or "minutes". This should be clarified and kept the same throughout.

#### Page 6, Transient sample size up to 10

This is primarily a ballast test and therefore it does not matter if the lamp is base up or base down. This sample size could easily remain at 5.

#### Page 7, increase of warranty from one to two years

This seems excessive in lieu of no one knows what the customer is doing with it, where they are placing it, or how long it is actually operated. This is not compatible with industry standards regarding comparatively low priced products. A consensus must be made by CFL manufacturers on the supporting criteria for this before a warranty can feasibly be doubled.

#### Early labeling ending

One can certainly see both sides to this situation. It takes a considerable amount of time (9 to 10 months) to get up to the lowest requirement of 6000 hours. It is conceivable that many manufacturers will list for 6000 hours if the early labeling is abolished. However, there are still too many failures and abuses in the system when early labeling is allowed.

The addition of the 1000 hour lumen maintenance test has been a good early indicator of lumen retention. Rarely does a model fail the interim lumen maintenance point after it has already passed the 1000 hour requirement.

The addition of the rapid cycle stress test has helped to combat what appears to be the number one reason for early CFL failure, the lamp cathode and related connections. We have seen general improvement in the industry in this category.

However, the rapid cycle stress test does accurately project some other common failure types. I do not believe this test efficiently stresses the next most common reasons for failures: long term heat damage to the glass tubes or nearby components. The use of amalgam has increased and is not restricted to just the large manufacturers any longer. These types of lamps often run much hotter than average and often do not stabilize for 20 minutes or more. A five minute on time is not sufficient to stress this type of lamp.

I do not see any direct correlation between the rapid cycle stress test and the long term average rated life test for 6000 hour rated lamps. A comparative study can not be made

for higher life ratings at this time due to the relative short interim period between proposed specification changes.

The proposals previously viewed on the website regarding moving the early labeling to the 40% mark are certainly intriguing. The majority of the CFL's that we have tested at the 40% point for lumen maintenance tend to retain most of these lumens until very near the end of life. Again, the current interim life requirements (two lamp failures maximum) cannot be directly correlated to the long term life results for lamps with higher than 6000 hour ratings due to the relatively short interim period between proposed specification changes.

Another proposal if early labeling is found to be unacceptable is to give the manufacturers a clear process in which to "step up" their life ratings after the initial full qualification period as they pass the longer life milestones.

Another proposal previously viewed on the website touches on the continued need of after-market testing. A simple addition to some form of early labeling rules would be to add an after-market analysis as a requirement to the Energy Star program after full qualification is achieved. For example, a very reduced set of test requirements similar to what the retailers are currently using once a year for two years would be an easy way to track the quality issues that early labeling inadvertently encourages.

#### Further specification clarifications

Further studies should be made to ensure all parties participating in the Energy Star program are in agreement in the areas the referenced LM and ANSI standards leave open to interpretation. Some of these are the definition of a life failure outside of the obvious (for example, very low light output, excessive flickering, or intermittent starting), proper life cycling time, calculations of lumen maintenance, and the waveform to be used in the transient tests, etc. Also, many of the referenced standards the Energy Star CFL specification currently uses have been revised and updated and contain valuable information in this regard.

There are still daily complaints about the time, confusion, and communication in the listing and de-listing process and general dissatisfaction from the CFL industry as a whole with the CFL Energy Star program. The short notice again, for the second time, leaves a large amount of models caught between two specifications.

The Energy Star program has by far reached more people and has lasted longer than the many energy efficiency programs we have seen come and go. This program has a lot of potential and has a strong building base. Please let me know if we can be of assistance.

Best regards,

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