

DLC Feedback on Draft ENERGY STAR LM-80 Guidance

To Whom It May Concern,

The DesignLights Consortium[®] appreciates the opportunity to comment on ENERGY STAR's draft revision to the LM-80 Guidance. DLC has historically referenced this document in its product evaluation rules and has found it an invaluable resource for ensuring consistency in the evaluation of lumen maintenance.

DLC submits the following comments for consideration:

- Timing: it is DLC's understanding that the draft language discusses only the timing of implementing the required reporting elements of the Guidance. DLC suggests that ENERGY STAR also explicitly clarify the timing for the implementation of the other elements within the guidance (Application of reports for Certification, Requirements for Successor Subcomponents). That is, especially given the context that the proposal explicitly allows pre-existing reports to remain unchanged indefinitely, at what point will ENERGY STAR require that the new guidance rules (and only the new guidance rules) be used for the certification of products (in areas where the new guidance differs from the old guidance).
- Timing: additionally, it is DLC's experience that LM-80 reports exist within the marketplace, and are submitted in support for qualification of product, for a long time. This is even true when there are newer, more up to date reports available for given LED subcomponents. DLC suggests ENERGY STAR specify a date certain when all LM-80 reports submitted in support of products seeking certification comply with the new reporting rules, and not allow pre-existing reports to be used indefinitely.
- Note box 7: In the view of DLC, many of the characteristics listed in the document will be difficult for a test laboratory to verify outside of clarification from the subcomponent manufacturer. For example, it seems likely that a laboratory would be unable to identify if a package had been constructed using "identical construction processes" (3.7.c.iv.). In this spirit, in our view it would continue to be valuable to include the "die spacing" rules
- Note box 7: DLC believes it would be helpful for ENERGY STAR to explicitly clarify if the "dimensional adjustments" referred to in the 3.7.c.iii. are intended to allow for subcomponent manufacturers to alter the size of the die used in the package. This is alluded to in Note Box 7, point 4's reference to "greater quantities of smaller dies"), but does not appear explicitly in the guidance if the note boxes are removed. This has been a point of confusion to industry in our experience. This is particular pertinent given that the Guidance has been revised in several places to reference current *density* per die, rather than simply current per die.
- Note box 9/CRI: DLC understands ENERGY STAR's reluctance to include any guidance related to CRI without supporting technical data. However, this leaves CB users to make judgements on the applicability of LM-80 to other packages that vary in CCT. It would be useful for ENERGY STAR to clarify explicitly the intended "default" guidance, even if that guidance is that it will be left up to individual CBs to make determinations of the technical applicability of LM-80 at one CRI to another CRI. DLC would prefer guidance that is uniformly applied, and believes that in the absence of data to the contrary, LM-80 of subcomponents at lower nominal CRIs should not be applicable to maintenance projections of otherwise similar subcomponents at higher CRIs. DLC is currently neutral on the converse situation (testing of higher CRI subcomponents applying to lower CRIs).
- Section 4.5: In our experience, few manufacturers have LM-80 data on arrays/modules constructed of multiple types of LEDs. With the approach becoming more common (for either purposes of achieve improved color rendering or for color tuning), DLCs suggest adding an alternative pathway to demonstrating compliance with lumen maintenance requirements. A conservative approach could be as follows:
 - "Certification of a product employing both phosphor-converted white and single-color LED packages must demonstrate compliance with all maintenance requirements by referencing an LM-80 test report for a sample of LED arrays, with each array composed of both types of packages, *or by referencing an LM-80 report and conducting a TM-21 projection for each type of package present in the product. In the latter case, projections for each type of LED package must each demonstrate compliance with the relevant lumen maintenance requirements independently.*

Again, DLC appreciates the opportunity to comment on ENERGY STAR's draft guidance. If you have any questions on our comments, please contact us and we would be happy to elaborate.

Best Regards,

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