LG Electronics

Dear Energy Star Lamp Team,

Thank you for providing us with the opportunity to make comments on the new draft of Lamp. After reviewing carefully the Draft 3, we make our comments as follows :

1. Product Variations

Since it is specified to restrict the changes in LED drivers, the effect on the performance of heat dissipation from Allowable Variations would be negligible. Also, in the case of LED lamps, the drivers are often potted to achieve better thermal conductivity and enhanced safety. In this case, the manufacturer should submit the sample without potting and the potting material to measure the temperature of the components such as capacitors and fuses, etc.. Furthermore, there could be test deviations resulting from the tester's competence in handling the potting materials. **Therefore, we suggest that the critical component is restricted to LED packages.**

2. Lumen Maintenance and Rated Life

This new draft proposes 3 options for the measurement of Lumen maintenance and Rated life. However, it is not easy to set up the test equipments and takes time to re-test the products which are already certified by Energy Star. And there would be deviations in the results since the stresses applied on the lamp from these 3 options are not identical. Thus, the measurement methods are needed to be integrated.

Our suggestion is to apply Option C for the measurement method, and Integral LED lamp v1.4 for the classification.

- **LED lamp power < 10W must operate at 25℃ between measurements**
- **LED lamp power ≥ 10W must operate at 45℃ between measurements**

3. Power Factor Requirements

It is inappropriate to apply the same criteria of integral lamps on MR16 since the power factor of MR16 is greatly influenced by the performance of the external control gear. **Therefore, we would like to suggest the elimination of PF requirement for low voltage MR16s.**

LG Electronics

4. Color Angular Uniformity

Because the number of measurement increases in the case of lamps with wide beam angle, and it takes much time and effort to verify the performance, the scanning resolution should be subdivided as follows.

- Scanning resolution
  - Beam angle < 10° : 1°
  - Beam angle ≥ 10° : 2°
  - Beam angle ≥ 20° : 5°

Furthermore, it is unavoidable to have increased chromaticity variation in the lamps with high CCT. **Thus, we suggest to adopt following criteria for the variation of chromaticity.**

- **Variation of Chromaticity**
  - **CCT ≤ 4000K : 0.006**
  - **CCT > 4000K : 0.009**

5. Dimming Performance

Even though the portion of dimmable LED light sources has increased, difficulties in dimming compatibility are not resolved yet. The regulation of dimming performance in this draft seems to be a burden on the manufacturers. Therefore, we propose as follows.

First, for lamp ver. 1.0, the regulation of Dimming performance should be postponed.

Second, If the application of regulation is inevitable, the number of dimmers for testing should be reduced to 5, and the type of dimmers should be limited to 3.

Third, If EPA assigns specific dimmers to be tested, there would be less confusion.

Thank you for your considerations of these comments.

Best regards,

Jaechoon Lee
Chief Research Engineer
jc71.lee@lge.com