**Summary of the ENERGY STAR Integral LED Lamp Criteria**

Background: Much of the criteria were benchmarked off of the ENERGY STAR CFL criteria in terms of efficacy, testing approach and the introduction of a quality assurance program. Significant differences exist however between the CFL criteria and the Integral LED Lamp criteria. Most notably, the scope of the program as well as additional requirements intended to address the unique characteristics of LED technology. Below is a table outlining the performance requirements in the new program:

| Criteria Item | Non-Standard Lamps | Omni-directional Lamps | Decorative Lamps | Directional Lamps |
|---|---|---|---|---|
| Applicable ANSI Lamp types | NA | A, BT, P, PS, S, T | B, BA, C, CA, DC, F, G | BR, ER, K, MR, PAR, R |
| Efficacy | < 10W – 50 lm/w<br>≥ 10W – 55 lm/w | < 10W – 50 lm/w<br>≥ 10W – 55 lm/w | 40 lm/w | ≤20/8 inch diameter – 40 lm/w<br>>20/8 inch diameter – 45 lm/w |
| Minimum Light Output | 200 lumens | 200 lumens[1] | 70 lumens[2] | Equal to target wattage of the lamp to be replaced multiplied by 10 |
| Luminous Distribution | NA | Even distribution within 0˚ to 135˚ zone | NA | Minimum Center Beam Intensity for PAR and MR16 lamps |
| Lumen Maintenance[3] | 25,000 hours | 25,000 hours | 15,000 hours | 25,000 hours |
| Allowable CCT | 2700 K, 3000 K, 3500 K, and 4000 K | | | |
| CRI | 80 and an R9 value greater than 0 | | | |
| Base Types | Any ANSI standard base | | | |
| Power Factor | ≤5W – no minimum; >5W – 0.7 or higher | | | |
| Operating Frequency | 120 Hz | | | |

Other, requirements include: size restrictions, minimal color shift, and testing at elevated temperatures for lamps that use 10 watts of electricity or more. Products designed to replace HID and linear fluorescent lamps are not included in these criteria. Products can be qualified immediately, however, the ENERGY STAR logo cannot appear on products or product literature until August 31, 2010.

[1] Based on equivalencies to incandescent products. See table in the criteria. This requirement will be enforced on product packaging.
[2] Ibid.
[3] Measured as the number of hours at which the lamp maintains 70% of the initial light output. Qualification requires at least 3,000 hours of testing for initial qualification and at least 6,000 hours of testing for full qualification. Testing period determined by lifetime claims.