



U.S. Department of Energy
Energy Efficiency and Renewable Energy



ENERGY STAR® Solid-State Lighting Criteria Update

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DOE Solid-State Lighting Workshop
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This Morning's Topics

- Scope of the first ENERGY STAR SSL Criteria
- DOE's vision for the format
- Support of standard and test procedure development
- Proposed Schedule



Scope of the Initial ENERGY STAR Criteria

- Excludes OLEDs... for now
- Coverage limited to general illumination only
- Exclude hybrid fixtures
- For both residential and commercial applications
- CCTs limited to 2700–6500K
- Adopt the L_{70} definition for rated life
- System based efficacy (includes driver losses)



Proposed ENERGY STAR Format

- Two Categories:
 - Category A: Near-term Niche Applications
 - Category B: Efficacy Based Performance
- In the future, when there a large number of systems meeting Category B, drop Category A.



Why a two Category Approach?

- Allows time for standard and test procedure development
- Focuses attention on products with the highest likelihood of success
- Provides a future performance target for manufacturers
- Gives the lighting industry experience with the new technology



Proposed Category "A": Near-term Niche Applications

- Low to moderate illuminance requirements
- Tasks a modest distance from the light source
- Potential for cost effective use of LED based products in the near term
- Prescriptive based requirements:
 - Illuminance levels
 - Efficacy
 - Photometry
 - Minimum light output



Proposed Category A Products

- Under-cabinet Kitchen Lighting
- Under-cabinet Desk/Task Lighting
- Display Case Lighting
- Portable Desk Lamps
- Outdoor Step Lighting
- Outdoor Walkway Lighting
- Outdoor Porch Lighting



Category A: Under-cabinet Lighting



Albeo Talea



EnbrytenLED ENBU



Category A: Display Case Lighting



American Fluorescent



GELcore



Category A: Portable Desk/Task Lighting



6 Watt LED Desk Lamp



Halley LED Desk Lamp



Category A: Outdoor Step





Category A: Outdoor Pathway



Advanced LED Ltd.





Proposed Category "B": Efficacy Based Performance

- Most similar to the current ENERGY STAR criteria
- Long-term efficacy target based on these factors:
 - Exceed current ENERGY STAR Residential Light Fixture (RLF) and CFL thresholds (50-70 lpw)
 - Exceed levels achievable within the next 3-5 years
 - Set the level balancing the need for an aggressive target and the impact on system cost
- Potentially introduce a new parameter to account for LED directional characteristics:
 - Application Efficacy, Equivalent Efficacy, Efficacy Factor, Application Efficiency, etc.



Standard and Test Procedure Development Important to Effort

- Many standards do not exist or are in development
- Standards Workshop in late February/early March for key standards organizations (ANSI, CIE, IEC, IES, IEEE, NEMA, NIST, etc.)
- Consider requests for technical assistance
- Use some existing/proposed standards on an interim basis



Proposed Schedule

- Standards Workshop in late February/early March
- Draft specification for industry review and comment July 06
- Stakeholder meeting in July 06
- Three month public review and comment period
- Final Criteria October 06
- Effective date 270 days after issuance (July 07)



Questions?

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