

Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council

August 4, 2014

Ms. Brenda Edwards
U.S. Department of Energy
Building Technologies Program
Mailstop EE-2J
1000 Independence Avenue SW
Washington, DC 20585-0121

RE: Docket Number EERE-2011-BT-TP-0071 (RIN # 1904-AC67): Test Procedures for Light-Emitting Diode Lamps

Dear Ms. Edwards:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), and the Natural Resources Defense Council (NRDC) in response to the Department of Energy's (DOE) published Supplemental Notice of Proposed Rulemaking (SNOPR) regarding the test procedure for light-emitting diode lamps (79 FR 32019; 79 FR 36242). We thank DOE for the opportunity to comment on this important matter.

Overall, we support DOE's proposed use of IES LM-79-2008 to determine lumen output, input power, CCT, and CRI. The scope of this test method provides a broad testing platform suitable for all general service and directional LED lamps, which will support future federal conservation standards for LEDs, the Federal Trade Commission's Lighting Facts program, and the ENERGY STAR LED program. We also support DOE's proposal to require a testing sample of 10 lamps and its removal of the 1,000 hour lamp seasoning period.

The comments below discuss our remaining areas of concern.

Testing Conditions for Lumen Output, Input Power, CCT and CRI – We support DOE's proposed use of IES LM-79-2008 to measure ambient air temperature and its proposal to test an equal number of lamps in the base up and base down orientations. We are concerned, however, that DOE has not proposed any testing requirements for air movement. As highlighted in DOE's previous Notice of Proposed Rulemaking (NOPR), IES LM-9-2009 provides a simple, inexpensive method for determining a draft free environment whereby a single ply tissue paper is used to allow for a visual representation of any drafts. Absent any control for air movement, a stream of air could be directed at the lamp during testing to help dissipate heat buildup, potentially yielding distorted test results that are not representative of typical field conditions. Inclusion of the tissue paper method would address this problem without any significant additional burden on manufacturers.

For directional lamps and those lamps labeled “suitable for use in enclosed fixtures,” we urge DOE to require that they be tested under elevated temperature conditions in the same manner required by ENERGY STAR (as adopted from IES LM-79-2008). In its current proposal, DOE only requires that testing measurements to be taken at an ambient temperature of 25°C (± 1) for photometric testing, which fails to consider the elevated temperatures that can be experienced in an enclosed fixture.

Lamp Lifetime Testing – We agree with DOE’s proposal that lamp lifetime ends once its lumen output reaches 70% of initial lumen output. We strongly support DOE’s decision to test the whole lamp, and not just the LED source component. Testing the whole lamp better accounts for how the lamp operates as a whole and particularly how it handles heat buildup. It also better accounts for lamp failure caused by other components that might occur before lumen output falls below 70%.

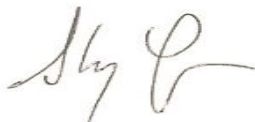
We also agree with DOE’s proposal to allow manufacturers to determine the length of the testing period while restricting lamp lifetime claims to the length of the test period multiplied by four. To help ensure the accuracy of lifetime claims, however, we urge DOE to also include one or more stress tests.¹ Doing this will help ensure that common failure mechanisms are captured in the abbreviated lifetime test period. As currently proposed, it is possible that a component will catastrophically fail after the test period but prior to the end of the claimed lamp lifetime. Stress tests will help address failure modes other than lumen degradation. Should DOE decide not to include stress tests in this test procedure, we request that it be clearly represented that the absence of additional stress tests and life indicators does not preclude the U.S. Environmental Protection Agency from requiring them for the purposes of the ENERGY STAR program.

Additionally, we support the lifetime testing suggestions made by the California Investor Owned Utilities to help protect against early failure. Namely, a minimum test duration of 4,000 hours, tightened ambient air temperature requirements of 25°C (± 5), and calculating the time to failure for a product as the mean time to failure of all tested samples.

Light Distribution – DOE should include light distribution measurements as part of its performance parameters to help determine if a lamp is distributing light effectively. IES-LM-79-2008 provides a beam intensity measurement for directional lighting that is used by the ENERGY STAR program, which we urge DOE to adopt also.

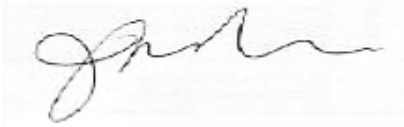
Thank you for considering these comments to this important docket.

Sincerely,



Anthony Fryer, Senior Analyst
Appliance Standards Awareness Project

¹ Suggested stress test: http://www.lightingprize.org/pdfs/lprize_60w-stress-testing.pdf



Jennifer Amann, Buildings Program Director
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Meg Waltner, Manager, Building Energy Policy
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