

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
AIR AND RADIATION

June 2, 2008

Dear Manufacturer or Other Interested Party:

The purpose of this letter is to inform you regarding a technical amendment to the ENERGY STAR residential light fixture (RLF), ceiling fan and vent fan specifications. With this amendment, EPA is responding to a number of requests from manufacturers to incorporate test procedures and metrics to allow LED-based fixture performance to be evaluated against the requirements of the existing RLF specification. This is pursuant to the recent finalization of a new testing procedure for LED light engines which makes it possible to test LED-based fixtures in a manner comparable to the way other technologies are tested under the longstanding ENERGY STAR residential fixture program.

We believe it is appropriate to allow LED-based fixtures to be eligible for the ENERGY STAR if they indeed demonstrate the performance required in the current residential specification (while also ensuring the products deliver on their claims of long life). This technical amendment clarifies the procedures and requirements for these fixtures to qualify. Given the importance of providing a level playing field across today's efficient lighting technologies, it is effective immediately.

We have reviewed this new testing procedure as well as other available testing procedures for LED-based fixtures and are providing this technical amendment based on the following observations and findings.

- The suite of testing procedures available to test the performance of LED-based fixtures allows them to be tested against the requirements of the RLF specification, and these LED-based fixtures should therefore be eligible for inclusion in the ENERGY STAR program upon demonstrating that they meet the required performance levels.
- This technical amendment compliments the DOE SSL program by allowing for a broader set of LED-based light fixtures to participate in a harmonized manner with other ENERGY STAR qualified residential light fixture technologies. Effective in August, the DOE SSL program specification outlines performance requirements for a number of specific SSL fixture applications, namely under cabinet lights, portable desk task lights, recessed downlights, outdoor wall mounted porch lights, outdoor step lights and outdoor pathway lights. The DOE performance requirements for these applications were harmonized with the performance requirements of the ENERGY STAR RLF program, while accounting for the directionality of the light from these fixtures. This amendment allows for the immediate qualification of LED-based fixtures that are intended for residential general illumination, and

it allows them to qualify at the performance levels required for other lighting technologies. EPA will be coordinating with the DOE as to how best to provide manufacturers with as seamless a process as possible to qualify and promote the full array of ENERGY STAR qualified residential light fixtures.

- This technical amendment outlines test procedures for LED-based fixtures that are consistent with the testing approaches used for residential general illumination or “decorative” lighting. Approximately 80 % of the fixtures currently qualified under the ENERGY STAR RLF program fall into this category, which includes styles such as pendant, flush mount, chandelier, wall sconce and portable light fixtures. Given the nature of this category of lighting, EPA has adopted test procedures that are focused on the light source, not accounting for the optical effects of glass or plastic diffusers which tend to be selected by consumers based on aesthetic versus performance considerations. Accordingly, the adopted test procedure is designed to evaluate the performance of LED light engines, which integrate an LED package(s), driver and heat sink into a single unit. This approach is consistent with the existing RLF program approach to testing light source and ballast combinations (a.k.a. “platforms”) in the context of fluorescent technology. The effects of heat are included in the test procedure given that heat is a critical factor in determining the performance and life of LEDs.

Under this amendment (RLF Version 4.2, attached), fixture manufacturers may qualify LED-based products by selecting and specifying the high performance light engine that will be used within their fixture. Once the light engine is tested and its performance characterized, the qualifying data can be applied to other similar fixture types, provided that the thermal conditions within the fixtures are the same. Full photometric testing of each fixture is not necessary as the results from this testing are infrequently used in residential general illumination; these tests are also fairly costly, placing undue burden on manufacturers. Consistent with existing protocols for the ENERGY STAR residential lighting program, the ENERGY STAR ceiling fan and vent fan light kit specifications have been amended as well to reflect these changes.

Heading into the eleventh year of the ENERGY STAR residential lighting program, we look forward to working with you as you develop, design and promote energy efficient residential lighting products. If you have any questions, please feel free to contact me at baker.alex@epa.gov or (202) 343-9272.

Sincerely,



Alex Baker
ENERGY STAR Lighting Program Manager
US EPA