



THIRD PARTY CERTIFICATION IMPLEMENTATION

ENERGY STAR® PRODUCTS

SUBJECT: ENERGY STAR Lamps Verification Testing– Test Requirements, Sample Sizes, and Reporting Failures

DIRECTIVE NO. 2015-01

Revised Date: 12/14/2015

For purposes of ENERGY STAR verification testing, EPA-recognized certification bodies (CBs) must test certified lamps against the following limited set of core performance requirements, **as applicable to the specific model**.

- Efficacy
- Light output or center beam intensity (verify for equivalency claim)
- Light output ratio (Directional lamps only)
- Luminous intensity distribution (Omnidirectional and Decorative LED lamps only)
- Correlated color temperature
- Color rendering (Ra for all lamps, R9 for LED lamps)
- Color maintenance (LED lamps only)
- Color angular uniformity (Directional LED lamps only)
- Lumen maintenance (1,000 hours for CFLs, 3,000 and 6,000 hours for LED lamps)
- Rated life (observation of operational CFL units after 4,000 hours of operation, and 6,000 hours for LED lamps)
- Run up time (covered CFLs only)
- Rapid cycle stress test
- In-situ temperature test (LED lamps that utilized early certification only)

CBs must subject each lamp model to two additional tests, selected at random by the CB, from among the requirements listed below.

- Frequency
- Transient protection*
- Start time*
- Run up time* (bare CFLs only)
- Power factor*
- Dimensional requirements

Verification testing must be conducted in the same manner it was for certification, with the following exceptions:

1. Instead of performing the lumen maintenance tests for 40% of rated life for CFLs, an observational check should be made at 4,000 hours to confirm that >90% of units are surviving at that time;
2. Lifetime and lumen maintenance testing should use the highest wattage measured of a single unit sample to determine the testing temperature (unless product is marked not for use in enclosed or recessed fixtures);

3. If CFL start time measured in verification testing exceeds 100 milliseconds it is no longer exempt from full rapid cycling;
4. CBs are required to follow sample size approaches as outlined by the relevant performance criteria, with the exception of tests marked above with an asterisk, for which partners have the option to test one sample for purposes of verification testing.

Reporting to EPA

Consistent with procedures for other ENERGY STAR product categories, CBs are required to report testing failures on any of the performance requirements to Enforcement@energystar.gov within two days of determining a testing failure, and include with this submission all relevant test reports. EPA will then notify the partner per the [ENERGY STAR Disqualification Procedures](#).

Specific to verification testing of ENERGY STAR Lamps, EPA has defined marginal failures in the Lamps Verification Testing: Marginal Failure Table. CBs are required to notify EPA of all failures and EPA will notify CBs if further testing is needed.