Third Party Certification Implementation: ENERGY STAR Luminaires Verification Testing Guidance for Certification Bodies – Test Criteria, Sample Sizes and Determining Testing Failures

Performance Criteria

Verification testing for ENERGY STAR luminaires will be limited to the following core performance criteria where applicable to the specific model.

- Luminous Efficacy and Output
- Zonal Lumen Density (Directional Luminaires Only)
- Lumen Maintenance[1]
- Correlated Color Temperature
- Color Rendering
- Color Angular Uniformity
- Color Maintenance[1] (Directional Solid State Indoor Luminaires Only)
- Source Start Time
- Source Run-Up Time
- Maximum Measured Ballast or Driver Case Temperature
- Off-State Power Consumption (Only Luminaires Employing External Power Supplies)
- Power Factor

To ensure luminaire products continue to meet the ENERGY STAR specification, verification testing must be conducted for these criteria in the same manner it was for certification. Note that for luminaires that are required to ship with a lamp in the package, testing should be conducted on that lamp.

Test Sample Sizes and Determining Testing Failures

One Sample Criteria: For the testing criteria above that require all tested samples to meet ENERGY STAR requirements, one sample should be selected, obtained, and tested for purposes of verification testing. The measured performance must be equal to or better than the ENERGY STAR requirements. A testing failure will result if the measured performance fails to meet any of these ENERGY STAR criteria.

Three Sample Criteria: For the testing criteria above that require multiple sample testing where less than 100% of the tested sample results must meet the ENERGY STAR requirements (e.g., at least 90% of samples must meet ENERGY STAR requirements), then three samples should be procured at once for purposes of verification testing. One sample should be tested initially. If at any point during the testing that sample fails to meet any of these criteria, then the two additional samples must have testing initiated immediately for all three-sample criteria. For these three-sample criteria, if the measured

[1] For solid state lighting luminaires, lumen maintenance and color maintenance should be verified consistent with how the luminaire was certified. If the luminaire was certified using IES LM-80 data, the LEDs should be verified to ensure they are the same as those used for certification and the corresponding LM-80 data should be reviewed in conjunction with the verified temperature data to determine whether or not the product passes verification testing for the relevant criteria.

performance of two or more samples fails to meet any of these ENERGY STAR criteria, it is considered a testing failure.

For both one and three-sample criteria, if testing failures occur, testing should continue and be completed as planned. At any point in the verification testing process, the manufacturer may opt to have the model disqualified and cease testing.

Consequences of Testing Failures

Consistent with procedures for other ENERGY STAR product categories, CBs are required to report testing failures on any of the criteria to enforcement@energystar.gov within two days of determining a testing failure. EPA will then notify the manufacturer per the ENERGY STAR Disqualification Procedures.