



LED MEASURE ELIGIBILITY

Measure Eligibility Criteria

Eligible LED measures for the Oncor LED Lighting Program include U.S. Department of Energy (DOE) ENERGY STAR[®]-qualified LED lighting and controls (occupancy/daylight-sensing). Criteria and testing procedures under the ENERGY STAR[®] Solid-State Lighting (SSL) program continue to be developed, and LED manufacturers are in the process of qualifying their products. **Therefore, for the 2010 program year, the Program will evaluate and qualify proposed LED lighting measures on a project-by-project basis using the applicable ENERGY STAR[®] criteria, standards and testing requirements in effect at the time of Project approval.** The Program evaluates measures in a market-neutral, non-discriminatory manner.

Criteria against which proposed measures will be evaluated include:

- Applicable ENERGY STAR[®] Program Requirements for Solid-State Lighting (SSL) Luminaires and Integral LED Lamps in effect at the time of Project Approval.
 - Latest criteria: www1.eere.energy.gov/buildings/ssl/energy_star_criteria.html
 - Measures for which no ENERGY STAR[®] criteria are in effect will be evaluated against the existing ENERGY STAR[®] requirements and criteria that most closely match the proposed Project.
- Manufacturers must participate in DOE's Quality Advocates program and take the Lighting Facts Pledge to accurately report and disclose LED product performance based on industry standardized testing (www.lightingfacts.com).
- Fixtures for outdoor/uncovered applications must utilize a control measure that automatically prevents operation during daylight hours.
- IESNA LM-79-08 photometric test measuring the photometric properties of SSL devices, allowing calculation of luminaire efficacy. Testing laboratory must hold NVLAP accreditation for the LM-79-08 test procedure or must be qualified, verified, and recognized through the DOE's CALiPER program.*
- In-Situ Temperature Measurement Test (ISTMT). Laboratory must be approved by OSHA as a Nationally Recognized Testing Lab (NRTL), must be qualified, verified, and recognized through DOE's CALiPER program, or must be recognized through UL's Data Acceptance Program.*
- IESNA LM-80-08 lumen maintenance test allowing calculation of measure lifetime, provided by LED package, array, or module manufacturer.
- Meet applicable Underwriters Laboratory safety specs. for Luminaires (UL 1598).

* For retrofit projects involving an LED retrofit kit, lamp or module that will go inside an existing fixture housing, LM-79 testing and the In-Situ Temperature Measurement Test (ISTMT) must be performed within the fixture housing under comparable optical and thermal conditions that the LED product will be subjected to once installed at the project site.

Take A Load Off, Texas[®] is provided by Oncor Electric Delivery LLC as part of the company's commitment to reduce energy consumption and demand. Ecos implements the LED Lighting Program as an independent contractor. For more information, visit www.takealoadofftexas.com.

Measure Qualification

ENERGY STAR®-qualified measures are eligible and require no further qualification.

For non- ENERGY STAR®-qualified measures: once an eligible Project has been identified, Service Providers and measure/device manufacturers may be required to provide detailed measure data and test reports in order for the Program to evaluate and qualify proposed LED measures against the criteria summarized above.

A summary of the required documentation is below, though the Program may require additional measure data in some cases. Refer to the DOE ENERGY STAR® Manufacturer's Guide for Qualifying SSL Luminaires - Version 2.0 (http://www.energystar.gov/index.cfm?c=ssl_res.pt_ssl) for additional technical information on criteria, testing and documentation (sections regarding the ENERGY STAR® submittal process, however, do not apply to this Program).

DOCUMENTS REQUIRED TO EVALUATE PROPOSED LED MEASURES

- a. IESNA LM-79-08 Photometric (Goniophotometry) Test Report (formatted to LM-63-03)
- b. IESNA LM-79-08 Integrating Sphere Output Report
- c. For Lumen Maintenance, use either:
 - Option 1 – Component Performance
 - LED Package Manufacturer LM-80 Test Report with results showing relative light output over time
 - In situ temperature measurement test (ISTMT) showing measured TMP_{LED}
 - Diagram or photograph of the Temperature Measurement Points for the package, array or module
 - Option 2 – Luminaire Performance
 - IESNA LM-79-08 Test Report at time = 0 and 6,000 hours respectively.
- d. For Power Supply (the ISTMT typically includes these results)
 - In situ temperature measurement test showing measured TMP_{PS}
 - Diagram or photograph of the Temperature Measurement Point for the power source
- e. Warranty (a written or electronic copy of the complete terms and conditions)
- f. A written statement indicating the forward drive current (in milliamps, mA) applied to the LEDs in the luminaire, Product Part Number of the luminaire (clarify the version or generation if it is not specified in the part number), and a description/part number of the LED Chip(s)/package(s) in the luminaire.

SSL TECHNOLOGY FACT SHEETS: LED Measurement (<http://www1.eere.energy.gov/buildings/ssl/factsheets.html>)

- **Solid-State Lighting Standards:** Review of the key LED performance and safety standards
- **Luminaire Efficacy:** Overview of LED luminaire efficacy
- **LED Luminaire Reliability:** Outline of the issues concerning long-term performance and reliability of LED luminaires, and suggestions for interpreting LED product life claims
- **Understanding Photometric Reports for SSL Products:** Overview and discussion of typical elements in IES LM-79 photometric reports for LED luminaires and LED integral replacement lamps