



**National Lighting Partner Meeting
March 12-14, 2007**

**RESIDENTIAL LIGHT FIXTURES 101
Submittal Process**

Overview



- Review of ENERGY STAR documents
- Documentation Sources
- Pitfalls & Common Questions
- Demo
- Goals

Key Documents and Forms



- ENERGY STAR Residential Light Fixture (RLF) Eligibility Criteria – Current Version 4.0
- Qualified Product Information (QPI) Forms
 - Indoor
 - Outdoor
- Supplemental Information Form (SIR)

OMB No. 2060-0528

ENERGY STAR® QUALIFIED PRODUCT INFORMATION FORM FOR INDOOR RESIDENTIAL LIGHT FIXTURES

INDOOR

ENERGY STAR product information form for use by ENERGY STAR qualified residential light fixture partners (Companies who have joined ENERGY STAR for residential light fixtures by signing a Partnership Agreement)

You may use this form to report those products that are sold under your company's brand name. If your firm sells models (fixtures) under a brand name different from your company name, you must list the brand name and the associated retailer organization. Please copy this form and return one for each lamp-ballast combination to the address below.

MANUFACTURER (ENERGY STAR Partner): _____

SECTION I -- LAMP & BALLAST INFORMATION:

Number of Lamps/Fixture	Number of Ballasts/Fixture	Individual Listed Lamp Wattage	Lamp Type ¹	Lamp Size ²	Lamp (e.g., lightbulb) Manufacturer & Model Number	Ballast Manufacturer & Model Number

ENERGY STAR should review this submittal as a (circle one): Lamp &/or Ballast Platform³ Complete Fixture Both

¹ Lamp Type: For example, CFL = Compact Fluorescent, CR = Circular, L = Linear
² Lamp Size: For example, T4, T5, or T8
³ A lamp and ballast platform does not receive the ENERGY STAR mark and cannot be promoted as an ENERGY STAR qualified product. Rather, you may promote the "qualified" lamp, ballast, or lamp-ballast platform as a component that meets applicable ENERGY STAR Program Requirements when used in ENERGY STAR qualified residential light fixtures.

SECTION II -- TEST RESULTS: Enter results from test report (complete using average of tested samples) or manufacturer data as specified in the ENERGY STAR Program Requirements for Residential Light Fixtures Version 4.0 and attach required documentation to this form.

Performance Characteristic	Test Result	Required Documentation

OMB # 2060-0528

ENERGY STAR® for Residential Light Fixture Supplemental Information Reporting Form

Manufacturer:

Date: _____

For Fixtures: On the "model #" line, list the First Fixture Model Number On Corresponding Qualified Product Information Form
For Platforms or dual Platform and Fixture reviews: On the "model #" line, list the lamp and ballast Manufacturer & Model Number, both as they appear on the QPI Form. Use the following format: "<Lamp> + <Ballast>"

_____ (model #)

Indoor Outdoor or Platform Submittal?

Submittal Process Overview



- Read RLF eligibility criteria
 - Tables 1 and 2 - performance requirements
 - Table 3 - explains the documentation required that shows the performance requirement is met.
- Complete QPI form in its entirety
- Attach required Supplemental Documentation into the appropriate tab within the SIR form
- Email submittal to **ESRLF_Submit@icfi.com**

When to Start a new QPI



- Submittals organized by lamp/ballast platform in fixture
- New QPI/SIR if yes to any of the following:
 - Fixtures use a different ballast
 - Fixtures use a different lamp
 - Fixtures share L&B but in different numbers
- SIR Section 8 – list all fixtures with this combination

Hint: The QPI as a Reference



- The “Required Documentation” Column
 - What documentation must be sent
 - Where documentation can come from

Required Documentation (please attach to this form)
Test report from a lab accredited by NVLAP or one of its MRA signatories, an EPA approved Platform Letter of Qualification, or EPA-approved documentation from an industry association.

Fixture Documentation Support



- NEMA/ALA Matrices
- ENERGY STAR Platform Letters

Supplemental Documentation Requirements



Manufacturer Data (lamp, ballast or fixture)	Manufacturer Test Reports	NVLAP or ISO 9000 Facility	NVLAP or OSHA NRTL	NVLAP	OSHA NRTL / UL
Lamp/Lampholder Compatibility	Power Factor	Lamp Life	Lamp Start Time	Efficacy	Ballast Safety
Lamp Labeling	Max Case Temperature inside fixture	Lumen Maintenance	Lamp Current Crest Factor	Color Rendering Index (CRI)	Fixture Safety
Ballast Case Hot Spot	Ballast Frequency	Correlated Color Temperature (CCT)			
Maximum Recommended Ballast Case Temperature	Transient Protection				
Fixture Warranty	End of Life Protection				
Replaceable Ballast					
Decorative LED					
Product Packaging					

NEMA/ALA Matrices



- Web site:
www.nema.org/lampballastmatrix/
- History: Created in 2001 after RLF V. 3.0 became effective
- Structure: Fixture manufacturer matches lamp matrix entry to ballast matrix entry
- Submittal requirements for fixture manufacturers:
 - **FAQ Available:** “Reference Materials” -> “Instructions for Luminaire Manufacturers”
 - Complete the NEMA/ALA Matrix Supplemental form (this form calculated efficacy and is what allows EPA to verify where the data is coming from and verify that the lamp and ballast combination selected meets the ENERGY STAR requirements.)
 - Use the data reported on matrix to complete the QPI form
 - Insert the NEMA-ALA Supplemental form into the SIR form



NEMA/ALA Matrices: Benefits



- When using data from the lamp and ballast matrices the following required supplemental documents are NOT required (Indoor):

Manufacturer Data (lamp, ballast or fixture)	Manufacturer Test Reports	NVLAP or ISO 9000 Facility	NVLAP or OSHA NRTL	NVLAP	OSHA NRTL / UL
Lamp/Lampholder Compatibility	Power Factor	Lamp Life	Lamp Start Time	Efficacy	Ballast Safety
Lamp Labeling	Max Case Temperature inside fixture	Lumen Maintenance	Lamp Current Crest Factor	Color Rendering Index (CRI)	Fixture Safety
Ballast Case Hot Spot	Ballast Frequency	Correlated Color Temperature (CCT)			
Maximum Recommended Ballast Case Temperature	Transient Protection				
Fixture Warranty	End of Life Protection				
Replaceable Ballast					
Decorative LED					
Product Packaging					

ENERGY STAR Platform Letters



- Web site:
http://energystar.gov/index.cfm?c=manuf_res.pt_platform_ltrs
- History: EPA responding to requests from manufacturers that made both lamps and ballasts and were not NEMA or ALA members. Serves the same purpose as NEMA/ALA Matrices – allows fixture manufacturers to avoid testing and retesting lamps and ballasts that they do not manufacture.
- Submittal requirements:
 - Use the data reported on the letter to complete the QPI form
 - Insert the letter into the into the SIR form

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

OFFICE OF
AIR AND RADIATION

[Date]
[Name]
[Company]
[Address]
[Address]
Dear [Name]

EPA has reviewed the Testing Documentation submitted by [Company] for the following [lamp, ballast, lamp/ballast combination], and determined that it meets the Version 4.0 Residential Light Fixture (RLF) specifications indicated below. [Company] may provide this Letter of Qualification to other manufacturers interested in qualifying the same [lamp, ballast, lamp/ballast combination] for ENERGY STAR. Those manufacturers may, in turn, submit a copy of this Letter in lieu of lab testing reports for the given performance characteristics. Please note that this Letter of Qualification only covers the performance requirements in the table below.

Components: Ballast(s) Manufacturer [name] Model # [model]
Lamp(s) Manufacturer [name] Model # [model]

# of Lamps	xx	xx	Listed Lamp Voltage	xx	Lamp Type	xx	Lamp Size	xx	Ballast Type	Electronic
Performance Characteristic		Test Result				Meets ENERGY STAR Specification? (Yes/No)				
Combined Lamp & Ballast Requirements:										
System Efficiency		xxxx		Total Lumen Output		Yes				
		xxxx		Input Power (watts)		Yes				
		xxxx		Lumens Per/Watt		Yes				
Lamp Requirements:										
Lamp Life		xxxx		Average Rated Hours		Yes				
Lumen Maintenance		xxxx		% of initial lumens at 40% rated lamp life		Yes				

ENERGY STAR Platform Letters: Benefits



- When using data from a Platform Letter the following required supplemental documents are NOT required:

Manufacturer Data (lamp, ballast or fixture)	Manufacturer Test Reports	NVLAP or ISO 9000 Facility	NVLAP or OSHA NRTL	NVLAP	OSHA NRTL / UL
Lamp/Lampholder Compatibility	Power Factor	Lamp Life	Lamp Start Time	Efficacy	Ballast Safety
Lamp Labeling	Max Case Temperature inside fixture	Lumen Maintenance	Lamp Current Crest Factor	Color Rendering Index (CRI)	Fixture Safety
Ballast Case Hot Spot	Ballast Frequency	Correlated Color Temperature (CCT)			
Maximum Recommended Ballast Case Temperature	Transient Protection				
Fixture Warranty	End of Life Protection				
Replaceable Ballast					
Decorative LED					
Product Packaging					

Pitfalls & Common Questions



- **Conditional Qualification - check date!**
 - Lamp Life (possibly Lumen Maintenance)
 - Visible on the Platform letter
 - **ENERGY STAR cannot accept an expired conditional platform for use in a fixture submittal.**
- If platform has expired:
 - Check ENERGY STAR website
 - Contact component manufacturer

Lamp Requirements:			
Lamp Life		10000 (1/1/2007)	Average
Lumen Maintenance		88.9	% of 40% (4,000)

Pitfalls & Common Questions



- **Temperature test**
 - (Maximum measured ballast case temperature)
 - Full information on test report requirements on Page 24 of the RLF Specification

Laboratory test results must be produced using the fixture with the highest operating temperature among all fixtures being qualified, the specific ballast that will operate in the fixture, and a lamp with the same wattage and lamp type (e.g., triple-tube, quad tube, spiral) that will operate in the fixture. For this test, a sample of one or more fixtures must be used.

The supplemental documentation should include the following:

- Fixture model(s) tested
- Lamp model(s) and ballast model(s) tested
- Measured maximum ballast case temperatures
- Ambient temperature
- Test procedure, including description of fixture installation, thermocouple location(s), and time that elapsed before readings were taken.
- Ballast Manufacturer Maximum Recommended Case Temperature During Normal Operation Inside the Fixture(s)
- Ballast Hot Spot Location Diagram from the ballast manufacturer

Pitfalls & Common Questions



- **Outdoor Fixtures**
 - Shorter form than for Indoor
- **Main differences**
 - Table 2a – efficient sources
 - Table 2b – reduced operating time
 - Motion sensor must be present if qualifying against 2a
 - Safety
- Integral Photocell must be present in all Outdoor ENERGY STAR RLF products.

Pitfalls & Common Questions



- **Hotspot, Noise**

- Do not forget to include these in the submittal

- **Lamp Shipment**

- The only cases where an ENERGY STAR fixture can be shipped without the lamp are RC fixtures, fixtures with linear lamps, and outdoor fixtures

Takeaways



- QPI as a reference
- When to start a new QPI
- NEMA/ALA Matrix FAQ
- Review Trouble spots

Resources



- ENERGY STAR Website: Lighting
 - http://energystar.gov/index.cfm?c=manuf_res.pt_lighting
 - Materials from this session posted under the heading **“Fixture Submittal Resources”**
 - Specification documents
 - QPI and SIR Forms
 - Platform Letters

Demonstration



- Please review the Sample Submittal posted on the ENERGY STAR lighting page along with this presentation.