



Navigating the Lighting Product Qualification Process (aka How to Avoid Roadblocks)

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Outline



- Qualification Process Changes
- Third Party Certification
- Common Questions
- The Certified Subcomponent Database
- Allowable Product Variations:
 - Luminaires spec
 - Integral LED Lamps spec
- Technical Resources

Qualification Process Changes



- Effective January 1, 2011,
 - Qualification through new 3rd party certification process. For more information go to www.energystar.gov/3rdpartycert
 - All new qualifications are handled through an EPA-recognized certification body (CB), not an EPA or DOE contractor
 - Test data from an EPA-recognized laboratory required to qualify any product
 - All ENERGY STAR partners need to select a CB to certify products



Third Party Certification

The Role of the Certification Body



- CBs certify that products meet the ENERGY STAR specifications for the different product categories.
- CBs submit qualified products to be listed at www.energystar.gov
- Note: CBs tell EPA what is ENERGY STAR certified
- CBs oversee annual Verification Testing

The Role of the Certification Body



The certification body verifies that a product meets the following requirements (as applicable)

- Luminous efficacy
- Light output
- Zonal lumen density
- Light source life
- Lumen Maintenance
- CCT/Chromaticity
- CRI
- Color Angular Uniformity
- Color Maintenance
- Source start time
- Source run-up time
- Light source replaceability
- Dimming
- Photosensor control
- Power factor
- Transient protection
- Lamp current crest factor
- Off state power consumption
- Operating frequency
- Ballast / driver replaceability
- Noise requirements
- In situ temperature test
- Recessed downlight thermal performance (ASTM E283-04)
- Light source shipment
- Maximum ballast/driver case temp requirement
- Product labeling and packaging
- Warranty
- Electrical safety
- Electromagnetic and radio frequency
- ANSI performance standards
- IEC performance standards
- NEMA performance standards

The Role of the Certification Body



- Terminology / process note:
 - A product becomes ENERGY STAR certified once the CB has certified that it meets the relevant specification
 - A product becomes ENERGY STAR qualified once it appears on the qualifying product list (QPL) at www.energystar.gov
 - EPA may temporarily withhold qualification if certification data presents questions

Your First Step: Find a Certification Body



- www.energystar.gov/3rdpartycert
- Talk to a CB before having any testing done
- CB knows what tests need to be conducted, what testing can be leveraged for product variations
- Currently recognized CBs:
 - Advanced Compliance Solutions
 - CSA International
 - Curtis-Straus
 - IAPMO R&T, Inc.
 - Intertek Testing Services, NA Inc.
 - Keystone Certifications
 - TUV SUD America, Inc.
 - Underwriters Laboratories, Inc.

Second Step: Assess What You Have



- If you have existing test reports, these may be acceptable:
 - Reports relevant to the lamps, ballasts
 - Reports reference the most current revision of an IES method of measurement (IES LM-___)
 - Reports are of a reasonable vintage

Third Step: Fill in the Gaps



- Contact your vendors, inquire what test data may be available
- Engage CB on what additional testing is necessary, identify laboratory to work with
- Get testing completed, have test reports provided to CB

Common CB Questions



- *CBs interpret specifications and/or testing requirements differently. How do I know what the correct answer is?*
 - www.energystar.gov/lightingfaqs
 - certification@energystar.gov
 - luminaires@energystar.gov
 - lamps@energystar.gov
- *Does every variation need to be tested?*
 - No: products can be grouped by families, provisions existing for product variations.
- *How do I handle private labeling?*
 - Work with your CB



www.energystar.gov/lightingfaqs

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 - ... Windows/ Doors/ Skylights
 - Third-Party Certification
 - ... Lighting Product Certification
 - ... Recycling

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Lighting Product Certification

[Are commercial luminaires eligible for ENERGY STAR?](#)

[Can laboratories receive EPA-recognition to test products under the Luminaires V1.1 specification as well as be recognized to test luminaire subcomponents? If so, can laboratories use the same application, or would separate applications be needed?](#)

[In the Luminaires V1.1 specification, the Color Angular Uniformity Requirements state that measurements shall be taken throughout the zonal lumen density angles detailed on pages 11-13, and 5 degrees beyond. If a directional luminaire has light output only to 20°, for example a recessed down light with a narrow distribution, does it need to be measured all the way out to the angles detailed in the specification?](#)

[How does one comply with the ENERGY STAR CFL packaging requirements and the new FTC labeling requirements?](#)

[Can GU24-based light bulbs that were qualified to the Residential Light Fixture specification be automatically certified and listed on the Certified Lighting Subcomponent Database \(CSD\), or are they first subject to third-party certification?](#)

[What is the Certified Lighting Subcomponent Database \(CSD\)? Where can I find more information about what can be listed, and how it can be useful for qualifying luminaires with ENERGY STAR?](#)

[On the Certified Lighting Subcomponent Database \(CSD\), the data submission form for ballasts has a field for "run-up time". Is this required, and what number should be entered?](#)

[Are subcomponents listed on the Certified Lighting Subcomponent Database \(CSD\) subject to verification testing?](#)

[Can data for subcomponents that were listed on the NEMA/ALA Lamp-Ballast matrix be directly transferred to the Certified Lighting Subcomponent Database \(CSD\)?](#)

[Can the test data for a screw-based E26-based lamp be used to qualify a GU24-based lamp?](#)

[For ENERGY STAR qualification using the Luminaires specification, should my decorative pendant luminaire be](#)



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Are commercial luminaires eligible for ENERGY STAR?

The ENERGY STAR Luminaires specification is primarily intended for residential applications. There is a very limited and specific scope for commercial grade luminaires within the [ENERGY STAR Luminaires specification](#).

Was this answer helpful?

Related Topics

- [When can manufacturers certify, label, and sell light fixtures qualified to the new Luminaires specification?](#)
- [Are Supervised Manufacturer Test Laboratories/Witnessed Manufacturer Test Laboratories \(SMTLs/WMTLs\) required to participate in proficiency testing for IES LM-79 tests?](#)
- [Does EPA provide interpretations of UL standards or the Federal Communication Commission's \(FCC\) Electromagnetic Interference test procedures?](#)

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Common CB Questions

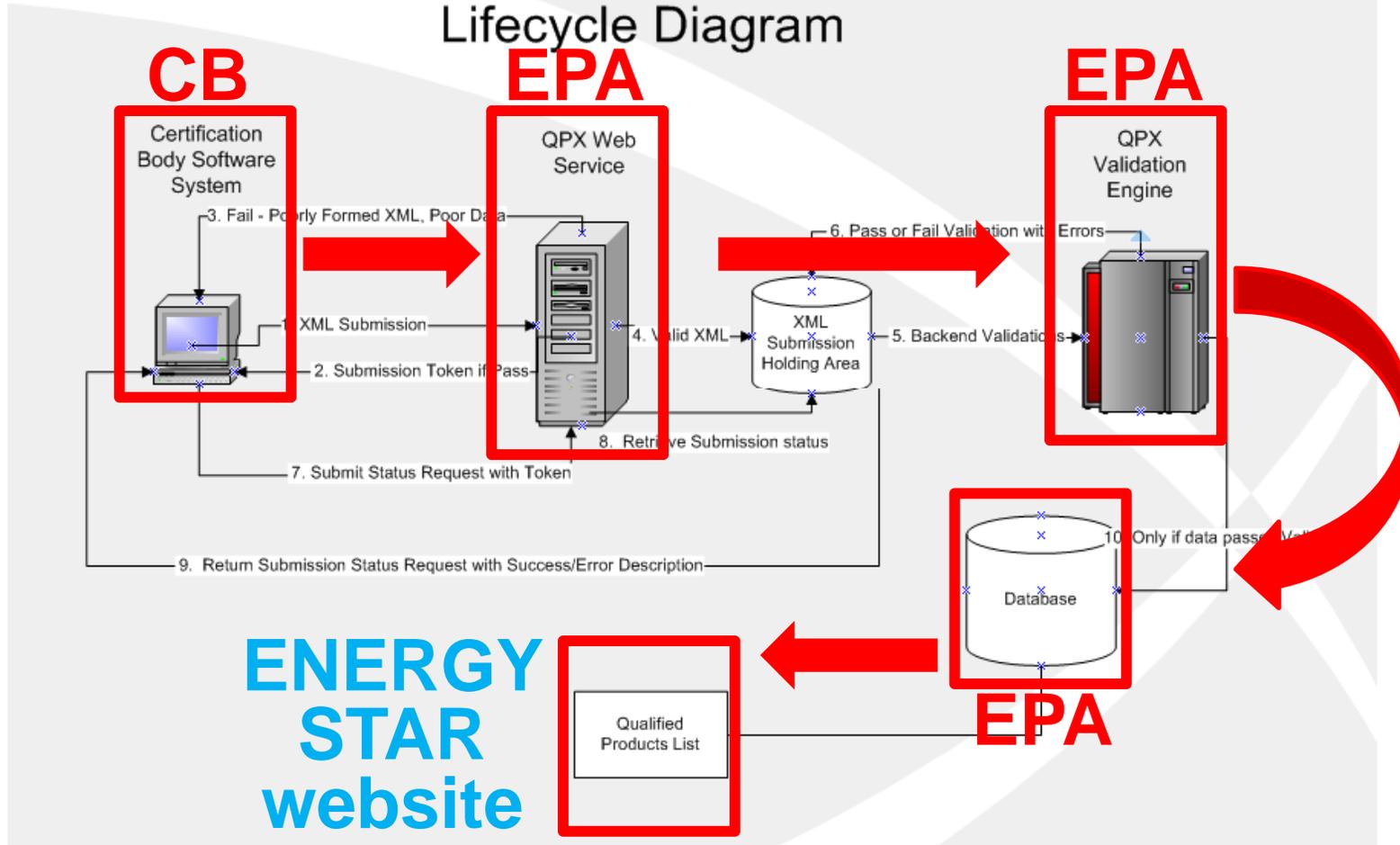


- *Fees to qualify products are so expensive, not including the testing.*
 - Group by families / leverage product variation allowances where possible.
- *Qualified products don't get listed very quickly.*
 - Data uploads currently happen approximately twice a month.
 - Longer term, XML system will enable QPL listing within 24 hours.

New Certification Infrastructure



Qualified Products Exchange (QPX) XML Transaction Lifecycle Diagram



Common CB Questions



- *Labs are at capacity.*
 - 40 labs to choose from – list is growing.
 - Labs are expanding capacity.
 - Work with your CB to find another lab that is able to test your product.
 - While CBs can't require you to use their labs, they ultimately they have to be comfortable accepting the test reports submitted. Work with your CB.

Common CB Questions



- *Can I use my in-house lab?*
 - Additional 1st party testing options:
 - Witnessed Manufacturer Test Laboratory (WMTL)
 - Supervised Manufacturer Test Laboratory (SMTL)
 - Consider getting your own lab witnessed or supervised to conduct photometric testing
 - **Once witnessed or supervised, your first party lab can be EPA-recognized** (requires application to be entered and approved by EPA)
 - Talk to your CB for more information
 - www.energystar.gov/lightinglabs

Common CB Questions



- *My CB won't let me use lamps listed on the NEMA/ALA lamp-ballast matrix.*

The data were not necessarily collected in EPA-recognized labs

- The data were not necessarily collected in accordance with referenced methods of measurement
- The data were not certified by an EPA-recognized certification body



Certified Lighting Subcomponent Database (CSD)

Certified Lighting Subcomponent Database (CSD)



- What is the CSD?
 - An **OPTIONAL** tool to streamline the qualification process
 - Replaces NEMA/ALA lamp-ballast matrix
 - www.energystar.gov/lightingsubcomponents
 - Database of certified test data for lamps, ballasts, integrated lamps, LED light engines that meet Luminaires spec requirements
 - Test reports themselves are not posted
 - CBs are directed to accept the data posted on the CSD
 - Use subcomponents listed on the CSD to qualify fixtures to the luminaires specification
 - (78) GU24 lamps listed
 - At least (14) in testing presently including dimmable, globe and A-line
 - (4) discrete ballasts

Certified Lighting Subcomponents: GU24 Lamps



| <u>Manufacturer</u> | <u>CCT</u> | <u>Lumens</u> | <u>Power</u> |
|---------------------------------------|------------|---------------|--------------|
| Feit Electric | 3000 | 900 | 13 |
| Feit Electric | 3000 | 1600 | 23 |
| Feit Electric | 3000 | 1800 | 27 |
| First Green Lighting Limited | 2700 | 800 | 13 |
| First Green Lighting Limited | 2700 | 900 | 13 |
| First Green Lighting Limited | 2700 | 1150 | 18 |
| First Green Lighting Limited | 2700 | 1200 | 18 |
| First Green Lighting Limited | 2700 | 1600 | 26 |
| First Green Lighting Limited | 2700 | 1650 | 26 |
| Golo Chang Co., Ltd. | 2700 | 900 | 13 |
| Golo Chang Co., Ltd. | 2700 | 900 | 13 |
| Golo Chang Co., Ltd. | 2700 | 1140 | 18 |
| Golo Chang Co., Ltd. | 2700 | 1200 | 18 |
| Golo Chang Co., Ltd. | 2700 | 1500 | 23 |
| Golo Chang Co., Ltd. | 2700 | 1560 | 26 |
| Golo Chang Co., Ltd. | 2700 | 1650 | 26 |
| Good Earth Lighting | 3000 | 900 | 13 |
| Good Earth Lighting | 3000 | 1600 | 23 |
| Good Earth Lighting | 3000 | 1800 | 27 |
| Hengdian Group Tospo Lighting Co.,Ltd | 2700 | 800 | 11 |
| Hengdian Group Tospo Lighting Co.,Ltd | 2700 | 900 | 13 |



Certified Lighting Subcomponents: GU24s in Testing



MaxLite

| <u>Shape</u> | <u>CCT</u> | <u>Lumens</u> | <u>Power</u> |
|--------------------|------------|---------------|--------------|
| A-line | 2700 | 850 | 13 |
| Dimmable Spiral | 2700 | 975 | 15 |
| Dimmable Spiral | 2700 | 1750 | 25 |
| Globe | 2700 | 850 | 13 |
| Low Profile Spiral | 2700 | 850 | 13 |
| Low Profile Spiral | 2700 | 1250 | 18 |
| Low Profile Spiral | 2700 | 1690 | 26 |
| Spiral | 2700 | 1260 | 18 |
| Spiral | 2700 | 1690 | 26 |
| Spiral | 2700 | 2080 | 32 |
| Spiral | 2700 | 2730 | 42 |

Certified Lighting Subcomponents: GU24s in Testing



Satco Products

| <u>Shape</u> | <u>CCT</u> | <u>Lumens</u> | <u>Power</u> |
|--------------|------------|---------------|--------------|
| Spiral | 2700K | 800 | 13 |
| Spiral | 2700K | 1200 | 18 |
| Spiral | 2700K | 1600 | 23 |

Certified Lighting Subcomponent Database



- *The CSD doesn't list the components I use*
 - Continued outreach by EPA
 - More subcomponents in testing, soon to be listed
 - Discrete lamps are a known problem
 - Talk to your subcomponent vendors about testing and certifying their products for listing on the CSD
 - Subcomponent manufacturers can contact luminaires@energystar.gov for more information, answers to questions

Certified Lighting Subcomponent Database



- *The CSD doesn't list the components I use*
 - It's OPTIONAL
 - Navigate around the problem: test subcomponents and/or platforms that matter to you
 - Have the certified test data posted to the CSD, or
 - Hold the test reports for your use only

Recognized Laboratory Test Reports



- Luminous Efficacy
- Light Output
- Zonal Lumen Density
- Light Source Life
- Lumen Maintenance
- CCT/Chromaticity
- CRI
- Color Angular Uniformity
- Color Maintenance
- Source start time
- Source run-up time
- Light Source Replaceability
- Dimming
- Photosensor control
- Power Factor
- Lamp Current Crest Factor
- Off State power consumption
- Operating Frequency
- Ballast/Driver replaceability
- Noise requirements



Allowable Product Variations

Allowable Family Variations



- *Every variation has to be tested?*
 - No, test a representative product and qualify other products as part of that “family”

Allowable Product Variations: Luminaires Specification



Table 1: Allowable Variations Within Product Families

| | |
|--|---|
| Housing / Chassis | Allowed so long as the light source or lampholder, ballast or driver, and heat sink (as applicable) are integrated into housing / chassis variations in such a way that the thermal performance of the luminaire is not degraded by changes to the housing / chassis. Thermal measurements of each variation may be required (e.g. ballast case temperature, TMP_{LED} , or TMP_C). |
| Heat Sink / Thermal Management Components | Not allowed. |
| Finish | Allowed. |
| Mounting | Allowed. Luminaire photometry test reports generated for outdoor post-mounted luminaires may be used to qualify outdoor porch (wall-mounted) and outdoor pendant luminaires within the same product family, in place of the source photometry requirements, so long as the bill of materials for each luminaire type is identical except for mounting hardware. |
| Reflector / Trim | Allowed so long as luminaire light output is not reduced. |
| Shade / Diffuser | Allowed so long as neither luminaire light output nor air flow are reduced. |
| Light Source (refers to the make and/or model of the source; also review CCT below) | Allowed so long as variations will not negatively impact luminaire's compliance with any performance criteria in this specification. |
| Correlated Color Temperature (CCT) (also review Light Source above) | Allowed so long as the lamp series or LED package/module/array series (and associated drive current), ballast or driver, and thermal management components are identical, and so long as variations will not negatively impact luminaire's compliance with any performance criteria in this specification. The representative model shall be the version within the product family with the lowest CCT. Partner shall use different luminaire model numbers to distinguish between models shipped with light sources of varying CCTs. |
| Ballast / Driver | Allowed so long as variations will not negatively impact luminaire's compliance with any performance criteria in this specification. Thermal measurements of each variation may be required (e.g. ballast case temperature or TMP_C). |



Allowable Product Variations: Integral LED Lamps Specification



Appendix F: Product Variations, Equivalency Claims, Lighting Facts Labels

Product Variations

Any variation in lamp design that impacts the performance of the lamp is considered a new, separate product and therefore must be tested in accordance with all requirements detailed in the specification. EPA will permit the use of long term lumen maintenance data and rapid cycle data across multiple model numbers which vary only in paint color and/or beam angle. Variations in paint shall be limited to color/pigmentation only; lumen maintenance data may not be applied across multiple models which employ variations in the type of paint employed. To apply lumen maintenance and rapid-cycle data across multiple models which vary only in paint color/pigmentation, EPA will require submission of in-situ temperature measurements of each of the models in question (refer to specification for in-situ temperature measurement details).

The use of long term lumen maintenance and rapid cycle data across multiple models which vary only in beam angle will be permitted so long as the variation between models is limited to the dimensions of the secondary optics (e.g. lens thickness, refractor patterns), and so long as these changes do not have a measureable negative effect (not more than + 1.1°C) on original in-situ temperature measurements. Variations in secondary optic material will not be permitted. To apply lumen maintenance and rapid cycle data across multiple models which vary only in beam angle, EPA will require the following to be submitted:

- in-situ temperature measurements of each of the models in question (refer to specification for in-situ temperature measurement details)
- a signed statement on the partner company's letterhead stating that there are no material variations between the models in question except for the dimensions of the secondary optics

Variations in Lamp Base

Lamps with the same bill of materials but alternate lamp bases may share test data if *in situ* testing demonstrates that the alternate lamp base has no measureable negative effect at the TMP. The *In Situ* Temperature Measurement Test detailed in Appendix D shall be used to establish that the variation in lamp base does not increase the temperature at the TMP more than + 1.1°C.

Allowable Product Variations: Lamps Specification V1.0 (Draft 1)



- Released on October 21, 2011
 - Comment period open until December 9th
- Combines Compact Fluorescent Lamps and Integral LED Lamps specifications
- Allowable variations to be determined
 - Partner input welcome, with technical justifications provided
- Some test reports used to qualify lamps to CFL or Integral LED Lamps specs may be used to qualify lamps to new spec

Technical Support



- Certified Lighting Subcomponent Database (CSD):
 - energystar.gov/lightingsubcomponents
- ENERGY STAR FAQs:
 - energystar.gov/lightingfaqs
- Questions about lamps
(CFL V4.2, Integral LED Lamps V1.4, Lamps V1.0):
 - lamps@energystar.gov
- Questions about Luminaires V1.1:
 - luminaires@energystar.gov
- Questions about certification:
 - certification@energystar.gov
- Partner pages: click through, then select “For Partners”:
 - energystar.gov/lightbulbs
 - energystar.gov/lightfixtures



Thank you

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