



Luminaires V2.0 Final Specification

June 5, 2015
2 PM - 5 PM EST

The webinar will begin at 2:00 PM

Call Line: **1-877-423-6338** or **1-571-281-2578**

Conference Code: **322020**

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- Today's discussion may be recorded for future availability
- Please **do not** place the meeting on hold
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- All lines are currently on **Mute**
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Today's Agenda

- Introductions
- Specification Roll-Out Timeline
- Run-through of the Final Luminaires Specification
- Considerations for Recertification
- Q/A Session



Introductions

- Austin Gelder, Senior Associate, ICF International
- Dan Rogers, Manager, ICF International
- Sam Levinson, Research Assistant, ICF International



Specification Roll-Out Timeline

- Luminaires V2.0 Specification was released on **June 1, 2015**.
 - Any luminaire manufactured as of **June 1, 2016** must be certified to V2.0 to bear the ENERGY STAR mark.
 - All certifications to Luminaires V1.x will expire on this date
 - There IS NO GRANDFATHERING
- The effective date has been set 1 year from the release date, **June 1, 2016**.
- Manufacturers may certify their eligible products to the Luminaires Version 2.0 requirements.
- After **December 1, 2015**, no new products can be certified to Luminaires V1.2.
- Models already certified to V1.0-V1.2 will maintain their certification status until **June 1, 2016**.



1 Scope

- Inclusion of new Surface Mount SSL Retrofit products
 - Wall Sconce
 - Ceiling Mount
- Intent is to allow situation optimized retrofits of existing fixtures
 - Considered non-directional
 - A self ballasted lamp is NOT a retrofit.
- Expanding the Outdoor Luminaire Category
 - Includes Directional and Non-Directional Fixtures
- Removal of Linear Fluorescent, HID, and Halogen light sources



1 Scope

- Removal of select light sources:
 - Linear Fluorescent
 - Already regulated by DOE to be extremely efficient
 - Cannot (successfully) ship with light source
 - HID
 - No currently certified products
 - Commercially oriented
 - No CCT reference points
 - Can't meet start / run up time
 - Halogen
 - No need



1 Scope

- Removal of commercial vs. residential distinction
 - Program still residentially focused
 - Sales channel does not impact the requirements
 - Partners will design the luminaires with appropriate features for their market



4 Definitions

- **Color Shifting Dimming Luminaire:** A luminaire with dimming capability designed to simulate the behavior of incandescent lamps where the chromaticity gradually shifts to a lower value as the product is dimmed. This function is not considered color tunable for the purposes of this specification, unless it can also be tuned to different colors at full output.
- **Color Tunable Luminaire:** For the purpose of this specification, a color tunable luminaire has functionality that allows the end user to alter the color appearance of the light generated by the luminaire. This tuning must include white light that is capable of meeting the specification's color requirements, and can alter the color appearance along the black body curve, or may also extend to colors beyond the ANSI defined correlated color temperature ranges (e.g. 2700K and 5000K) outside of the seven step MacAdam ellipse or the ANSI quadrangles.



4 Definitions

- **Connected Luminaire:** A luminaire or retrofit which includes elements or instructions (hardware and software or firmware) required to enable communication in response to consumer-authorized energy or performance related commands and complies with all requirements for connected in the specification. These elements may be resident inside or outside of the base luminaire or retrofit.
- **Enclosed Luminaire:** Luminaire which contains enclosed lamp compartment(s) where ventilation openings are less than 3 square inches per lamp in the lamp compartment or where the cross-sectional area of the opening of the lamp compartment is less than the maximum cross sectional area of the lamp compartment (adapted from UL 1598).



4 Definitions

- **LED Light Engine** - An integrated assembly comprised of LED packages (components) or LED arrays (modules), LED driver, and other optical, thermal, mechanical and electrical components. The device is intended to connect directly to the branch circuit through a connector compatible with the LED luminaire for which it was designed and does not use an ANSI standard base (derived from IES RP- 16-10). For purposes of this specification, light engines that rely on the luminaire for optical control, and/or thermal management, assemblies featuring remote-mounted drivers ("non-integrated"), and/or GU24 based integrated SSL sources not in the scope of the ENERGY STAR Lamps specification shall also be considered LED light engines.



4 Definitions

- **SSL Surface Mount Retrofit Kits:** A type of solid state lighting product intended to replace existing light sources and systems including incandescent and fluorescent light sources in previously installed luminaires that already comply with safety standards. These kits replace the existing light source and related electrical components, and are classified or certified to UL 1598C. This may employ an ANSI standard lamp base, either integral or connected to the retrofit by wire leads. This category does not include self-ballasted lamps, which are covered by the ENERGY STAR Lamps Specification, or products that utilize the existing ballast or transformer.



5.1 Testing Color Tunable Luminaires

- All tests and evaluations shall be at the least efficient white light setting included in this specification (Section 9.3).
- Default and Most Consumptive Settings
 - Watts, lumens, chromaticity, and CRI shall be tested and reported as applicable
 - if different from least efficient white light setting
- Detailed instructions for the control settings or control signals (as applicable) for reaching the least efficient, default, and most consumptive modes.



5.2 Certified Lighting Subcomponent Database

- The CSD has been around since Luminaires V1.0
 - Language has been integrated into the specification for clarity
- Covers:
 - Lamps
 - Compact Fluorescent
 - ~~• Linear Fluorescent~~
 - Circline
 - ~~— GU24 Based Integrated Lamps~~
 - Ballasts
 - LED Light Engines
 - Lamp-Ballast Platforms
- Testing LED Light Engines that rely on the Luminaire for heat sinking
- Category Changes



5.2 Certified Lighting Subcomponent Database

- Testing LED Light Engines that rely on the Luminaire for heat sinking
 - In a luminaire, a light engine will stabilize at a specific temperature
 - Regardless of what the actual heat sink is
- Manufacturers should test the LED Light Engine with a heat sink that is representative of the situation
 - If they test too efficient of a heatsink...
 - The data is useless, because it will be too hot in situ to use
 - If they test an insufficient heatsink...
 - The performance is lower than it will be in situ

6.1 Product Families

- Allowable variations (aka product family grouping) guidance is now displayed in a simple table clearly outlining which additional tests are applicable for each variation.

Allowable Variations Within Product Families		
Luminaire Attribute	Allowable Variation	Additional Test Data Required for Each Variant
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.	Engineering rationale or 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.	None
Finish	Luminaire body color/pigment.	None
Mounting	Allowed. Luminaire photometry test reports generated for outdoor post-mounted luminaires may be used to certify outdoor porch (wall-mounted), outdoor ceiling or close-to-ceiling 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.	None
Electrical Connection (SSL Retrofits)	Allowed (e.g. E26 and GU24).	None
Reflector / Trim	Allowed so long as luminaire light output is not reduced.	Luminous flux for each basic trim or reflector variation of the darkest or least efficient finish may be required.
Shade / Diffuser	Allowed so long as neither luminaire light output nor air flow are reduced.	None
Light Source ¹ (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.	<ul style="list-style-type: none"> Certified performance data from additional light source if separable Integrating sphere test for inseparable product



6.2 Product Families

- Allowable variations were extended to product wattage for directional luminaires.
 - LEDs
 - Allowed when:
 - LED doesn't change
 - Only difference is driver
 - Test highest wattage, highest CRI, lowest CCT
 - Test:
 - Current
 - CCT / CRI / Chromaticity
 - Lumens
 - Power Consumption



6.2 Product Families

- Allowable variations were extended to product wattage for directional luminaires.
 - Fluorescent
 - Allowed when:
 - Lamp type doesn't change
 - Only difference is lamp
 - Test highest wattage, highest CRI, highest CCT
 - Test:
 - CCT / CRI / Chromaticity
 - Lumens
 - Power Consumption



7 Test Methods and Reference Documents

- ANSI C78.377 – 2011 – Updated to most current specification, will require re-evaluation but will only impact products at the edge of the bins.
- ANSI C82.77-10:2014 – Updated to reflect proper measurement of power factor. Retest unnecessary.
- ANSI/UL 1598C – LED Retrofit Conversion Kits
- IEC 62301 – Measurement of Standby Power
- IEEE PAR1789 – Flicker reference document
- LM-65-14 / LM-66-14 – Updated to latest test method of CFLs – retest unnecessary.
- LM-84-14 / TM-28-14 – Replaces 6,000 hour test for SSL luminaires.
- NEMA SSL 7A-2013 – Dimming reference document



7 Test Methods: Other

- IES TM-21 Addendum A
 - Currently no ENERGY STAR specification cites the addendum.
 - EPA is proceeding carefully and will cite the appropriate document when the test procedures committee intent is clear and EPA has had a chance to evaluate any potential impacts to the program and partners.
- IES LM-80 Addendum
 - Not referenced
 - Changes are consistent with the Lumen Maintenance Guidance
 - No conflicts
- ANSI C82.16 – 2015 – Anticipated, will allow LED driver testing in the future



8 Certifying Luminaires that Ship with ENERGY STAR Lamps

- Take a fixture with an ANSI Base
- Insert ENERGY STAR Lamp that is rated for the type of fixture
- Thermal test if enclosed
- Review packaging
- Save energy!





8 Shipping with ENERGY STAR Certified Lamps

- Performance Requirements
 - Harmonization between specifications is a good thing!
 - Lamps V2.0...
 - 65 lm/W
 - Minimum Lumen Output

Requirement	ENERGY STAR Requirements	Methods of Measurement Documentation
Source Efficacy	<p>≥ 65 lm/W per lamp</p> <p>All lamp permutations (makes and models) employed in a given luminaire model shall meet this requirement.</p>	ENERGY STAR Lamps S
Source Minimum Light Output (initial)	<p>Source shall provide a minimum of 800 lumens.</p> <p><u>Exception:</u> Outdoor porch, bath vanity luminaires and ceiling fan light kits featuring ≥ 3 heads shall provide a minimum of 450 lumens per head. Chandeliers, decorative pendants, wall sconces, and other multi-head indoor luminaires shall provide a minimum of 250 lumens per head.</p>	ENERGY STAR Lamps S



8 Shipping with ENERGY STAR Certified Lamps

- Luminaire Specific Requirements
 - Safety
 - Labeling / Packaging
 - Warranty
 - Toxics

Safety Rating	Luminaire must meet applicable safety rating in section 14 . Additionally, the lamp used must be suitable for the luminaire type it will be shipped with, e.g. a lamp shipped with an enclosed fixture must be safety tested in a totally enclosed situation and may not be rated or labeled “not for use in totally enclosed fixtures” or similar.	ANSI/UL 1993-2012, and ANSI/UL
Product Packaging & Labeling	Luminaire must comply with section 16 . Unless shipped with lamps directly installed, ENERGY STAR certified lamps shipped with luminaires must comply with lamps packaging requirements.	See Section 16
Warranty	Luminaire must comply with section 17	See Section 17
Toxics	Luminaire must comply with section 18	See Section 18



8 Shipping with ENERGY STAR Certified Lamps

- Enclosed Fixture Requirements
 - The lamp has to be safety rated for enclosed fixtures
 - The lamp must have been tested for lumen maintenance using ETLT
 - The air temperature in the luminaire has to be under 45°C
 - Measured via thermocouple inside the fixture measuring air temperature

Enclosed Fixture Testing	An enclosed luminaire may not ship with a lamp marked with "not for use in totally enclosed fixtures" or similar. An in situ test of the ambient air inside of the enclosure must be performed that the air temperature does not exceed 45°C.
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9.1 Efficacy and Lumen Output – Non-Directional

- Efficacy is greatly simplified...
 - 65 lm/W – for everything non-directional
 - Sources
 - Retrofits
 - No allowances.
 - Limited increase to account for:
 - Replaceable light engines with simplified drivers
 - Markets with additional color quality requirements



9.1 Efficacy and Lumen Output – Non-Directional

- Minimum Lumen Output... is also simplified
- Based on total lumens
 - 450 lumens for most luminaires
 - 250 lumens for
 - Decorative pendants
 - Wall sconces
 - Single head bath vanity
 - Wall sconce retrofits
 - 800 for surface mount ceiling retrofits
- Intent is to allow more flexibility in design



9.2 Efficacy and Lumen Output- Directional

- Cove and Undercabinet are combined
 - Requires 50 lm/W instead of 29 lm/W
 - Simplified to 125 lumens per linear foot
 - No longer requires asymmetrical distribution
 - Desirable in some but not all situations.
- Downlights
 - Requires 55 lm/W instead of 42 lm/W
- SSL Downlight Retrofits
 - Requires 60 lm/W instead of 42 lm/W
 - Reflects higher efficacy
 - Tested in can situation described in instructions
 - Per 1598C



9.2 Efficacy and Lumen Output- Directional

- Accent Lights
 - Requires 55 lm/W instead of 35 lm/W
 - Allows wider beams
- Outdoor Lights
 - Requires 60 lm/W instead of 35 lm/W
 - Allows 0.5% up-light to account for stray light in measurement
 - Can meet requirements by being certified to IDA and having their seal of approval
- Portable Desk Task Lights
 - Requires 50 lm/W instead of 29 lm/W



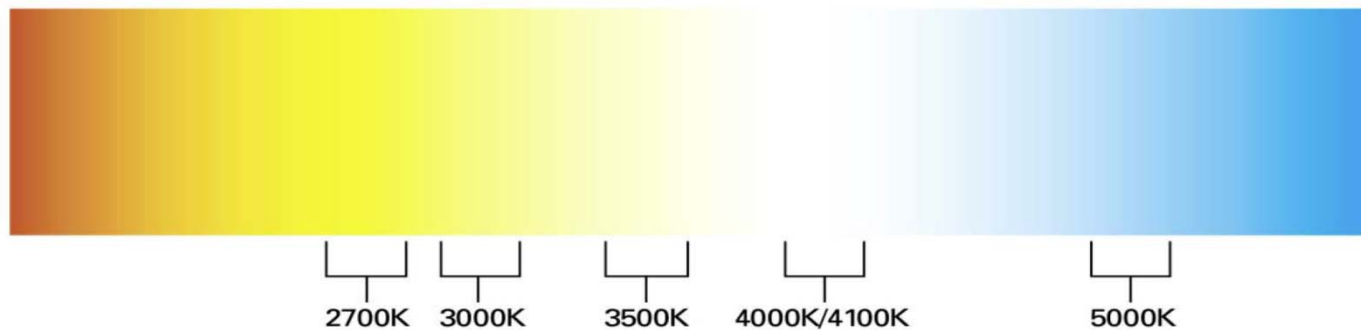
Future Efficacy Tiers

- Gone
 - Concerns from stakeholders on all sides
 - Intent was to keep specification relevant without need for recertification
- EPA determined there is too much uncertainty regarding the improvement of efficacy
 - The agency does not want to be too conservative or too aggressive
 - Increases in efficacy are anticipated in the next specification versions



9.3 Correlated Color Temperature (CCT)

- CCT
 - 2700K-5000K available for all Luminaires
 - 5000K was previously limited to commercial
 - 6500K was determined to be primarily commercial/industrial and is not included
 - Lower CCTs (2200K, 2500K) will be considered for a future point revision when ANSI published an updated C78.377





9.4 Color Rendering Index

- **R9**
 - Deep red rendering
 - Key to natural skin and wood tones
 - Fluorescent
 - Lamps shipped with luminaires shall meet or exceed $R_a \geq 80$ and report R9.
 - Solid State
 - The luminaire, retrofit kit, or LED light engine shall be capable of meeting or exceeding $R_a \geq 80$ and $R9 > 0$.



9.5 Color Angular Uniformity: Directional SSL Luminaires Only

- Area of interest is limited to the Beam Angle
 - This minimizes concern over measurement uncertainty
 - Focuses on where the majority of the light is focused
- Total Linear Distance of 0.006 from the weighted average initial point on the CIE 1976 (u', v') diagram
 - Clarifies how the method is evaluated
 - Repeatability in evaluation



10.1 Lumen Maintenance: All Luminaires

- [TM-21 Calculator](#) added as a reference
- $L_{70} \geq 50,000$ hours for inseparable luminaires
- Option 2 (not for LED Packages, Modules of Arrays):
LM-84-14 and TM-28-14
 - Sample size
 - Test Length
- See TM-28-14 – sample size and required testing for a claim are related



10.2 Light Source Life: All Luminaires

- Lifetimes depend on the type of luminaire:
 - $\geq 10,000$ hours for luminaires shipping with fluorescent lamps
 - $\geq 25,000$ hours for SSL indoor luminaires
 - $\geq 35,000$ hours for SSL outdoor luminaires
 - $\geq 50,000$ hours for inseparable SSL luminaires.
- Tied to lumen maintenance section



10.3 Color Maintenance: Solid State Indoor Luminaires Only

- Chromaticity change \leq Total Linear Distance of 0.007 from the initial (zero-hour) coordinates on the CIE 1976 (u',v') diagram
- All LM-80 samples, at any measurement point
- All LM-84 measurement points



11.1 Source Start Time

- Start Time – Requirement
 - Light source shall remain continuously illuminated within 750 milliseconds of application of electrical power, down from 1 second in Luminaires V1.x.
 - For Connected Luminaires:
 - Light source shall remain continuously illuminated within 1 second of application of electrical power.
 - Accounts for extra communication time of driver/ballast
- Start Time – Test Method
 - Utilizes the ENERGY STAR Lamps Start Time test method.
 - Will require re-testing



11.2 Run-Up Time

- Run-Up Time - Requirement
 - Reported value of time for lamps to reach 80% of stabilized lumen output after application of electrical power shall be ≤ 45 seconds
 - Luminaires V1.2 required 60 seconds for non-amalgam lamps, and 180 seconds for amalgam lamps.
 - Measurements shall be taken at the end of 100 hours of seasoning.
- Run Up Time - Test Method
 - Utilizes the ENERGY STAR Lamps Run-Up Time test method.
 - Will require re-testing



11.3 Power Factor

- Eliminated commercial distinction
- Fluorescent:
 - Total luminaire input power ≤ 5 watts: $PF \geq 0.5$
 - Total luminaire input power > 5 watts: $PF \geq 0.5$
- Solid State:
 - Total luminaire input power ≤ 5 watts: $PF \geq 0.5$
 - Total luminaire input power > 5 watts: $PF \geq 0.7$

11.4 Transient Protection

- Requirement
 - All samples must pass (no change)
 - Reduced Sample Size to 1 Luminaire from 3 Luminaires



11.5 Standby Power Requirements

- Standard Luminaires shall not draw power in the Standby Mode.
 - Luminaires with integral motion sensors, occupancy sensors or photosensors, or connected functionality may draw up to **0.5 watts** in standby mode
 - Luminaires with energy saving features i.e. integral motion sensors, occupancy sensors or photosensors **and** connected functionality may draw up to **1 watt** in standby mode.
 - Examples:
 - A connected downlight can draw up to 0.5 watts
 - A downlight with an integration motion sensor can draw up to 0.5 watts
 - A connected downlight that also has an integral motion sensor can draw up to 1.0 watts
 - A downlight that contains both a motion sensor and a photosensor can still only draw 0.5 Watts
 - Power supplies connected to multiple luminaires may draw up to **1.5 watts** in standby mode.
- Updated the External Power Supply performance requirements to allow for the new level VI International Efficiency Marking Protocol.



11.5 Standby Power Consumption – Test Method

- IEC 62301: Household electrical appliances – Measurement of standby power
 - Referenced by US DOE for Standby Power testing of LED lamps
- Data is collected over time
 - Measurement intervals of 1 second or less
 - Accounts for cyclic and non-cyclic power.
 - Average reading mode available for non-cyclic modes
- Will be a requirement for laboratories



11.6 Operating Frequency

- No change to the requirement
- More testing guidance for equipment / testing conditions included
 - Will help in future evaluations of flicker
 - Included PAR1789 as a reference document for consideration
 - NOT A REQUIREMENT



13 Thermal Performance Requirements

- Tested in the worst case thermal condition for which it is rated
- 13.1 – clarifies how to test SSL Retrofit Kits
 - Refers to ANSI/UL1598C-2014
- 13.2 – clarifies requirements for Recessed Downlights:
 - Insulation Contact (Type IC)
 - IC-AT
 - Airtight
 - Additional marketing guidance now appears in packaging requirements



14 Safety Requirements

- 14.1 Indoor Luminaire Safety
 - Condensed into one table for ease of reference
 - Luminaire specific
 - Refers to ANSI/UL 1598C-2014 for SSL hardwired luminaires and retrofit kits



15.1 Dimming

- Continuous Dimming is required to 20% or less of output
 - for those that claim dimmable
- Luminaire tested for noise while at the lowest dimmed state
 - 24 dBA at 1 meter or less



15 - Control Requirements – Connected Functionality

- 15.2 Products with Connected Functionality
 - Optional Requirement
 - Product must continue to comply with the applicable product safety standards
 - Regardless of the setting – e.g. it can't be set to a range that would be too hot for the safety ratings
 - Must comply with standby power requirements



15.2.1 Products with Connected Functionality – Optional Connected Product Criteria

- A “connected luminaire” (or retrofit) must include the elements (hardware and software or firmware) or instructions required to enable connected functionality
 - This means that it has to be ready to be connected
- These elements may be resident inside or outside of the base luminaire.
 - This allows for external software or hubs



15.2.2 Products with Connected Functionality – Optional Open-access

- An Application Programming Interface (API) or similar documentation shall be made available to interested parties, that enables the connected functionality described in this section.
 - EPA's intent is to allow for:
 - Interoperability
 - Innovation in features and capabilities
- Language referencing open standards communications have been removed.
 - EPA's intent is to remain flexible with the Connected Requirements



15.2.3 Products with Connected Functionality – Optional Energy Consumption Reporting

- The product shall be capable of interconnecting with consumer authorized entities to communicate data representative of its energy consumption.
 - Recommended interval of 15 minutes
 - Recommends Watt-Hours as units of consumption
 - Alternate units and intervals are allowed



15.2.4 Products with Connected Functionality – Optional Operational Status Reporting

- At a minimum, the product shall be capable of providing the on/off status to energy management systems and other consumer authorized devices, services or applications.
 - The luminaire needs to communicate on/off status
 - Any other status is optional but encouraged including:
 - CCT (if tunable)
 - Dimmed state



15.2.5 Products with Connected Functionality – Optional Remote Management

- The product shall be capable of receiving and responding to energy management system or other consumer authorized remote requests, via devices, services or applications, similar to hard-wired consumer controllable functions.
 - It has to be controllable
 - The luminaire may but is not required to
 - allow demand response
 - allow third party access



15.2.6 Products with Connected Functionality – Optional Information to Consumers

- If additional devices, services, and/or infrastructure are required to activate the product's connected capabilities, prominent labels, or other forms of consumer notifications shall be displayed at the point of purchase and in the product literature.
 - EPA's intent is for it to be clear to a consumer what the device is capable of doing out of the box



16.1 Labeling & Packaging: All Luminaires

- Optional CCT nomenclature (All Sources)
 - 2700 – Soft White
 - 3000 – Warm White
 - 3500 – Neutral White
 - 4000/4100K – Cool White
 - 5000K – Daylight
- Lighting Facts label (as applicable) can be used to meet nominal color designation requirement.



16.1 Labeling & Packaging: All Luminaires

- For luminaires marketed as dimmable:
 - Packaging shall include a list or web site address providing compatibility/incompatibility information, or a message noting limitations and web site address to find out more specific information.
 - Partner is encouraged to maintain up to date compatibility information at the provided web address



16.1 Labeling & Packaging: All Directional Luminaires

- Demonstrate the light distribution of the luminaire on a cut sheet, marketing materials or packaging.
 - Requirement is flexible
 - Illustrate how the light is distributed



16.2 Light Source Shipment

- Light source must be included with the luminaire!
 - The option to ship without a source is gone
- Shipping with a source ensures that what the consumer purchases is representative of the ENERGY STAR program requirements
 - Any sources shipped with the luminaire must have certified data



16.2 Light Source Shipment

- Light Engines also much ship with a luminaire, as they are a source.
 - Reminder: If it's not removable, it's not a light engine... see Inseparable SSL
- Luminaires can indicate if they are compatible with and certified to any of the current Zhaga light engine books.
 - Light engines are not required to have Zhaga
 - If the luminaire claims Zhaga compatibility, the source must be Zhaga certified as well as tested by an EPA-recognized laboratory



17 Warranty Requirements

- No Changes
 - 3 years minimum
 - If non-replaceable driver or ballast, 5 years
 - Lamps shipped with luminaires require a 3 year warranty
 - Based on 3 hours per day for fluorescent
 - No hours restrictions allowed for SSL

18 Lighting Toxics Reduction Requirements

- No Changes
 - Notable levels:
 - Lamps \leq 23.0 rated watts shall contain \leq 2.5 milligrams (mg) mercury per lamp
 - Lamps \geq 23.0 rated watts shall contain \leq 3.0 milligrams (mg) mercury per lamp



Considerations for Recertification

- EPA prepared a document for Manufacturers and Certification Bodies to help determine if a product certified to ENERGY STAR Luminaires V1.0-1.2 will need to be either re-evaluated, or retested, to be certified to Luminaires V2.0.
- This document is available at www.energystar.gov/luminaires

CONSIDERATIONS FOR RECERTIFICATION TO ENERGY STAR SPECIFICATION FOR LUMINAIRES VERSION 2.0

Section	Section Name	Requirement Change	Applicable Product types	Test Method Change	Retest	Re-evaluate	Notes
8	Shipping with ENERGY STAR Certified Lamps: Non-Directional Luminaires	New certification pathway replaces existing pathway for luminaires shipping with integrated lamps.	Products shipping with integrated lamps	Yes	Possibly	Yes	Enclosed fixtures will need testing. Products will need to be checked to make sure they are certified with ENERGY STAR certified lamp models.
9	Photometric Performance Requirements	N/A					
9.1	Luminous Efficacy and Output: Non-Directional Luminaires	No change to efficacy. Light output minimum change.	Non-directional luminaires	No	No	No	Light output requirement was a relaxation, no impact to currently certified products anticipated.
9.2	Luminous Efficacy, Output and Zonal Lumen Density: Directional Luminaires	Higher efficacy levels. Revised zonal lumen density requirements, guidance for testing downlight retrofits. Minimum light output requirement for inseparable luminaires.	All directional product types	No	Possibly	Yes	Light output and zonal lumen density changes will not impact certified products, but a higher efficacy requires reevaluation. Downlight retrofits may have to be retested if they were not tested according to the more specific guidance included in V2.0.
9.2	Luminous Efficacy, Output and Zonal Lumen Density: Directional Luminaires	Efficacy from 35 to 55, Zonal Lumen Density allows for wider beams	Accent Lights	No	No	Yes	Light output and zonal lumen density changes will not impact certified products, but a higher efficacy requires reevaluation.
9.2	Luminous Efficacy, Output and Zonal Lumen Density: Directional Luminaires	Efficacy from 42 to 55	Downlights	No	No	Yes	Light output and zonal lumen density changes will not impact certified products, but a higher efficacy requires reevaluation.
9.2	Luminous Efficacy, Output and Zonal Lumen Density: Directional Luminaires	Efficacy from 42 to 60, test environment clarified	SSL Downlight Retrofits	Yes	Yes	Yes	Downlight retrofits may have to be retested if they were not tested according to the more specific guidance included in V2.0.



Next Steps

- Updating ENERGY STAR Laboratory Guide for Lighting
 - Helps laboratories be recognized for Luminaires V2.0
- Updating Start Time and Run Up Time test methods to refer to units under test, not just lamps
 - Not a substantive change
- Updated QPX forms are in CB hands
- Updated QPL / Product finder will allow visibility of Luminaires certified to V2.0
- Continued development of ENERGY STAR Lamps V2.0



Questions

- Open questions
- *6 will Mute / Unmute your line for questions
- Can ask questions through the webinar
- Contact us at lighting@energystar.gov

