Stakeholder MEETING

2017

Common SSL Application Questions

Presenter

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Agenda

- Product Eligibility
- Product Testing
- Private Label Applications
- Updating Products

Product Eligibility

Determining Eligibility

- Products submitted must be marketed as and intended for one of the available Primary Use designations to be eligible

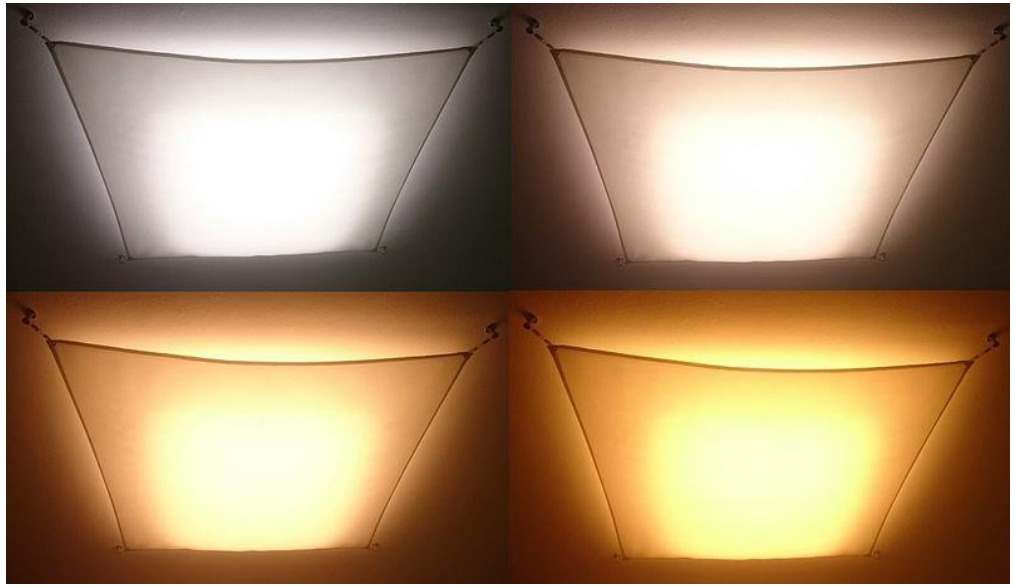
- DLC reviews product specification sheet for marketing language and product images
  - "SSL Application Supporting Documentation" Breakout Session will discuss more about DLC review Wednesday at 2 PM

Common Eligibility Questions

- Are color tuning products eligible?
- Are products intended for horticultural applications eligible?
- Are products that can be adjusted in the field eligible?
- Are products that use multiple LEDs eligible?

Color Tuning Products

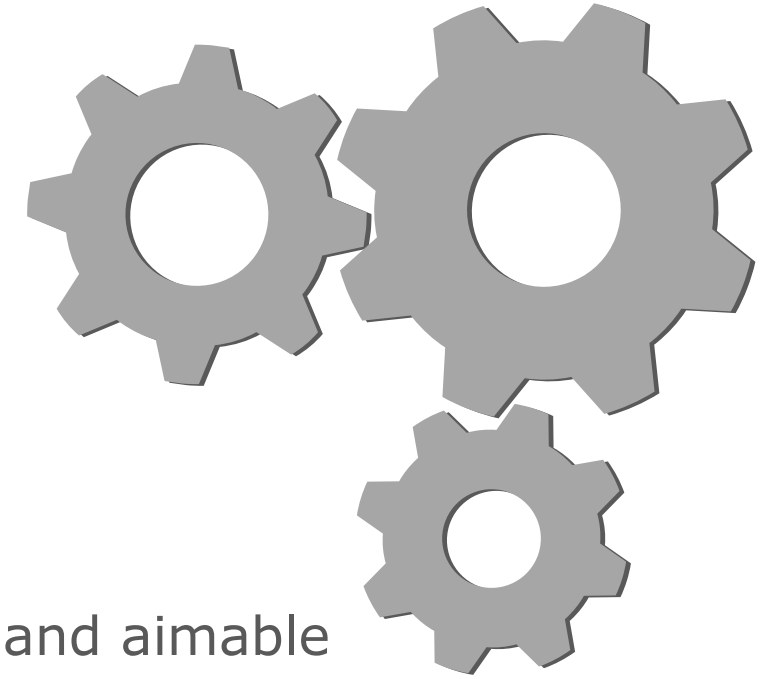
- Not currently eligible
- No defined policies for evaluating performance
- Policy Development underway
  - Discussion Session Tuesday 3:30 PM
  - Proposed policy released for comment December 2016, not finalized
  - Focused on white color tuning achieved via linear tuning with distinct, settable CCTs



Horticultural Products

- Not currently eligible
- Likely require distinct Primary Use designation
- DLC monitoring industry developments for standard testing and evaluation methodologies
- Under consideration for future Policy Development
  - Discussion Session Tuesday 3:30 PM

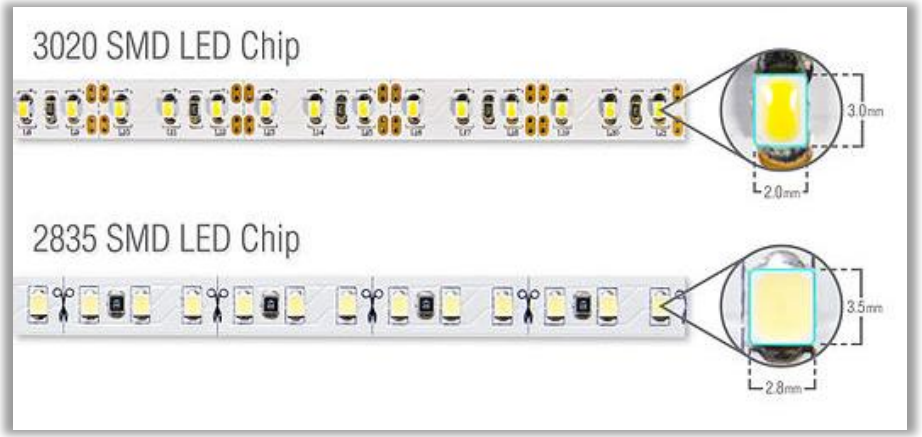
Field Adjustable Products



- Not currently eligible
- Products marketed with adjustable or settable performance during/after installation
  - Dimmable products with traditional dimmer controls and aimable mounting options excepted
    - Mounting orientation noted on QPL
    - Marketing materials must clearly identify qualified orientations
- Under consideration for future Policy Development
  - Discussion Session Tuesday 3:30 PM

Products with Multiple LEDs

- Eligible, but with restrictions
  - LED types and construction, including count, must be known
  - LED may not be dynamically controlled for purposes of color tuning
- Must meet lumen maintenance requirements for each LED
  - ISTMT measurements of hottest LED of each type
  - LM-80 reports and TM-21 projections required for each LED



Derivative of "Flexfire LEDs comparison between 5050 and 3528" by BrentMauriello used under CC BY-SA 4.0

Product Testing

Testing Requirements Information

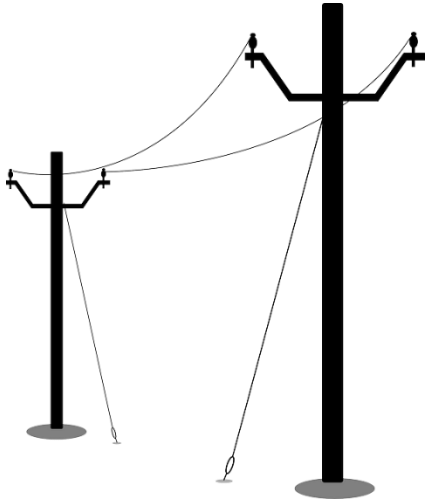
- LM-79, ISTMT, LM-80, and electrical testing required for qualification
- Laboratories must be accredited
- Test Lab Requirements details accreditations

- Submit a Product pages detail testing requirements by application type
- Certain Primary Uses have specific Testing Requirements
  - Retrofit Kits
  - Linear Replacement Lamps
  - Screw-base Replacement Lamps
  - Four Pin-Base Replacement Lamps for CFLs

Common Testing Questions

- My product operates at multiple input voltages. At what voltage should I test the product?
- What testing is required if there are multiple CCT variations in my product family?
- How should I test my retrofit kit or screw-base replacement lamp if it is designed for multiple Primary Use designations?
- If my linear replacement lamp is Dual Mode, should all measurements be conducted with an instant start ballast?

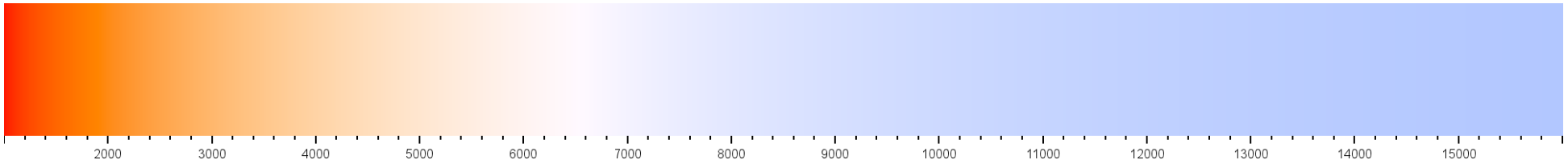
Voltage Variations



- Conduct testing at the worst case operating mode by metric
  - If light output will be worse at 347V, but power factor worse at 277V, test photometrics at 347V and electrical at 277V
- For universal voltage products (120-277V), DLC typically expects worst case photometrics at 120V and worst electricals at 277V
- Technical rationale must be provided to justify testing
  - You can provide in-house testing and specification materials of driver, but consider loading conditions

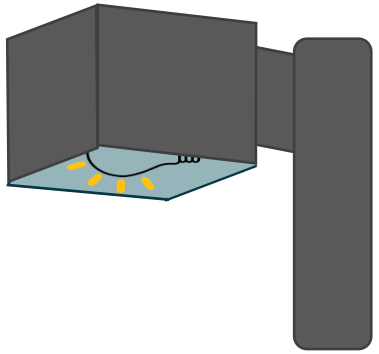
Multiple CCT Product Groups

- Must demonstrate lowest *and* highest CCT meets requirements
- LM-79 testing for worst case light output and efficacy expected at lowest CCT
- Highest CCT LM-79 testing required for both Standard and Family Grouping applications
- All products must meet all DLC requirements



Retrofit Kits & Replacement Lamps

- Retrofit Kits and Replacement Lamps must be tested in a reference housing
  - Option A (General Purpose): Test in an approved housings
    - Housings selected to represent typical environments
    - Alternate fixtures considered if commonly used and similar to approved housings
  - Option B (Luminaire Specific): Test in housing the retrofit kit is specifically design for and not already approved
  - To qualify in multiple Primary Uses, testing must be conducted in multiple approved housings



Linear Replacement Lamps

- Test lamps designed to operate off existing fluorescent ballast with reference ballast
  - T8 lamps: standard 0.88 ballast factor, instant-start ballast
  - T5 & T5HO lamps: normal 1.0 ballast factor, electronic programmed-start ballast
- Dual Mode products (UL Type A and UL Type B) must test as Type A: with ballast, in fixture. Bare lamp testing for Type B mode.

Private Label Applications

Private Label Applications

- Allows the option to re-list qualified products under alternate organizations without submitting duplicate testing information
- Products are expected to be identical to originally qualified versions
- For more information, visit the Private Label Applications page
  - "SSL Application Supporting Documentation" Breakout Session will discuss more about DLC review Wednesday at 2 PM

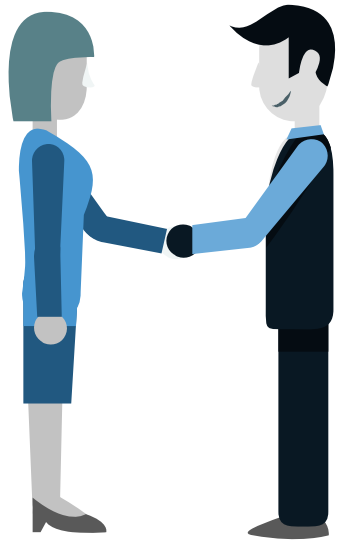
Common Private Label Questions

- Can I submit an application on behalf of the company private labeling my products?

- Is the OEM's safety certification documentation sufficient to list the products under my brand name?

Submitting Organization

- Either the OEM or the Private Labeling organization may submit
- Best practice is to have an available contact at both organizations



- Product spec sheets from both organizations required
  - Spec sheets created for the application are not allowed
- Signatures from both organizations required in agreement form

Safety Certification

- Safety certification required as of January 1, 2017
- DLC relies on safety certification organization to certify to the appropriate standard
- Must be certified by safety certification organization relevant in U.S. or Canada
  - Recognized by OSHA or Standards Council of Canada
- Documentation must indicate
  - The products as sold under the Private Label organization, brand, and model number, are covered
  - Safety certification has already been obtained

Updating Products

Updating Products

- DLC allows updating of previously qualified products
- Updates typically used to
  - Upgrade listing to DLC Premium
  - List better performance for generational improvements
  - Revise nomenclature due to marketing changes
- Information and documentation requirements depend on type of update
  - Details available in Product Update Applications page

Common Product Update Questions

- How can I revise the model number of my QPL listing?
- How can I update the performance of my product since I've upgraded components?
- How can I upgrade my products to the DLC Premium classification?

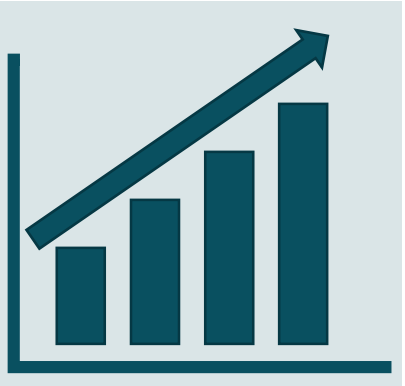
Product Nomenclature Updates

- Required documentation:
  - Signed statement on company letterhead certifying no changes other than nomenclature
  - Updated spec sheets that reflects nomenclature change
  - Completed Nomenclature Update Form

- Required for Private Label products:
  - Updated Private Label Agreement form

Product Performance Updates

- New testing must be provided and requires DLC review
- Testing dependent upon design change
- Provide a detailed description of design changes

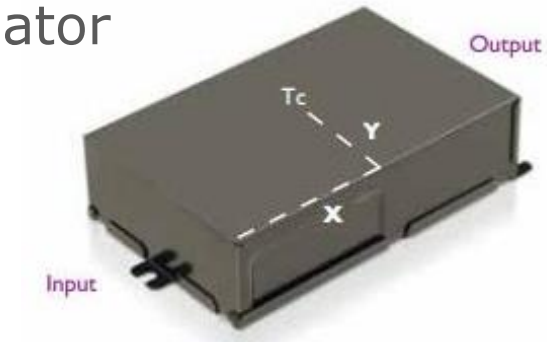


- To list both the original and new product, different model numbers are required

Upgrading to DLC Premium

- Luminaires and retrofit kits eligible for DLC Premium
- Additional performance requirements
  - Higher efficacy
  - L_{90} > 36,000 hours
  - Integral controls reporting
  - Driver reliability

- Additional testing and documentation needed:
  - Driver temperature measurements (ISTMT)
  - Driver spec sheet detailing lifetime vs case temperature and temperature measurement point
  - L_{90} TM-21 calculator



Questions?

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