



DesignLights Consortium™
Manufacturer's Guide
September 14, 2016

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I. Latest Updates

- I. **September 14, 2016 Version: Revised Definition of Architectural Flood and Spot Luminaires and Logo Guidance.** Added definition to include “Billboard Lighting.” Clarified logo use for general marketing materials and product specific marketing materials. Redefined logo violation policy.
- II. **June 10, 2016 Version: Technical Requirement V4.0 released June 1, 2016.** Minimum efficacy standards raised in each category. General application for ‘Display Case Lighting’ has been changed to ‘Case Lighting’. Added guidance on reporting Rf and Rg values. Updated Application forms to V4.0.
- III. **April 15, 2016 Version: Updates to Primary Use Definitions, Retrofit Kit Policy, Family Grouping Policy, Private Label Agreement Form, Test Report Authorization Form, and Logo and Trademark Use Guidelines**
Linear replacement lamps Primary Use designation definitions updated. Retrofit Kit policy updated to include a testing option for “Luminaire Specific” retrofit kits. Family Grouping policy updated to allow for driver variations. Standard Private Label Agreement form and Test Report Authorization form introduced. The DLC Logo and Trademark Use Guidelines have been updated.
- IV. **December 14, 2015 Version: Technical Requirements V3.1**
Technical Requirements Version 3.1 has been released.
- V. **August 3, 2015 Version: Technical Requirements V3.0, Updates to Website FAQs, and Logo and Trademark Use Guidelines**
Technical Requirements Version 3.0 has been released. DLC website FAQs have been updated and grouped into several categories. The DLC Logo and Trademark Use Guidelines have been updated.
- VI. **April 9, 2015 Version: Category Definitions**
Changes made to the High Bay and Low Bay Luminaires for Commercial and Industrial Buildings definitions.
- VII. **July 18, 2014 Version: Category Definitions**
Changes made to the Linear Ambient Luminaires: Indirect, Indirect/Direct, Direct/Indirect, and Direct and Stairwell and Passageway Luminaires definition.
- VIII. **July 8, 2014 Version: Dimming Information**
Consistent with the announcement of the draft policy on April 29, the DLC revised its application process to request information from manufacturers regarding the dimming capabilities of their luminaire, retrofit kit, and linear replacement lamp products for which they are seeking listing on the DLC QPL.
 1. **[Application Instructions](#)**
Revisions made to the single product, family group, and private label application instructions to include information on how to report dimming

capabilities and the new fee structure associated with reporting dimming capabilities.

2. [Dimming Policy](#)

Addition of the Dimming Policy, announced July 8, 2014.

IX. **January 29, 2014 Version: LED Lighting Facts Information**

Changes made to the LED Lighting Facts submission guidance to adapt to enhancements to the LED Lighting Facts submission process.

X. **October 22, 2013 Version: Lab Testing Requirements update**

Changes made to the Lab Testing Requirements table to incorporate announcement regarding final Testing Laboratory Requirements.

XI. **September 27, 2013 Version: Technical Requirements v2.1 updates**

1. [Primary Use Definitions](#)

Additional primary use definitions provided for Linear Ambient Luminaires: Indirect, Linear Ambient Luminaires: Indirect/Direct, Linear Ambient Luminaires: Direct/Indirect, Linear Ambient Luminaires: Direct, and Two-Foot Linear Replacement Lamps.

2. [Retrofit Kits](#)

Additional styles of reference luminaires provided, including lantern- and teardrop-style decorative outdoor luminaires, larger shoebox and round-area luminaires, and expanded styles of fixtures for fuel pump canopies.

3. [Linear Replacement Lamps](#)

Revisions made to the Linear Replacement Lamps policy to include testing and performance requirements for Two-Foot Linear Replacement Lamp primary use.

4. [LED Lighting Facts Information](#)

Additional guidance for selecting the appropriate product type in the LED Lighting Facts submission process for Linear Ambient Luminaires: Indirect, Linear Ambient Luminaires: Indirect/Direct, Linear Ambient Luminaires: Direct/Indirect, Linear Ambient Luminaires: Direct, and Two-Foot Linear Replacement Lamps.

XII. **September 10, 2013 Version: LED Lighting Facts Information**

Changes made to the LED Lighting Facts submission guidance to adapt to the new LED Lighting Facts website and submission process.

II. Purpose

This document is a technical guide for lighting equipment manufacturers seeking to place their products on the DesignLights Consortium™ (DLC) Commercial LED luminaires Qualified

Products List (QPL). This Manufacturer’s Guide includes instructions and details on the following topics:

- application submissions
- approved testing laboratories and requirements
- frequently asked questions
- logo-use guidelines

Manufacturers should review and understand the entire document and linked files before submitting an application to the DLC. The content in this Guide is subject to change at any time. Manufacturers will be notified of any changes that occur.

Changes will supersede the content of this Guide until an updated version is produced. Any changes will be posted in the News section and at

<http://www.designlights.org/Content/QPL/ProductSubmit>.

III. DesignLights Consortium Overview

I. About the DLC and the Commercial LED Luminaire Qualified Products List

The DesignLights Consortium (DLC) is a project of the [Northeast Energy Efficiency Partnerships](#) (NEEP), a regional non-profit founded in 1996, whose mission is to serve the Northeast and Mid-Atlantic region to accelerate energy efficiency in the building sector through public policy, program strategies, and education. The DLC promotes quality, performance, and energy-efficient commercial-sector lighting solutions through collaboration among its regional, state, utility, and energy efficiency program members; federal agencies, luminaire manufacturers; lighting designers; and other industry stakeholders throughout the United States and Canada.

Over its history, the DLC program has driven the lighting market toward innovation by providing information, education, tools, and technical expertise for cutting-edge commercial lighting technologies and best practices. Since 2010, the DLC has administered the Commercial LED Luminaire [Qualified Products List](#) (QPL), a leading resource that identifies quality, energy-efficient LED luminaires for the commercial sector. Today, the QPL sets the bar for efficiency program incentives across the United States and Canada, while informing manufacturer product development.

The DLC is supported by its members: regional, state, utility, and national energy efficiency programs throughout the United States and Canada.

II. Accepted Primary Uses

The DLC currently accepts applications for 64 primary uses: 10 Outdoor Luminaires, 13 Indoor Luminaires, 6 Outdoor Retrofit Kits, 9 Indoor Retrofit Kits, 12 Linear Replacement Lamps, 14 screw-base retrofit kits, and applications for select products that may be eligible under the Specialty Use designation. Primary uses and definitions are listed

below. Please refer to the [Technical Requirements](#) for the most up-to-date information about each primary use.

1. Primary Use Eligibility

Each product applying for inclusion on the DLC QPL must be intended for and marketed as at least one of the primary uses listed in the current Technical Requirements table or as an accepted specialty use. The DLC staff will review marketing material to determine eligibility and may ask for additional information if the intended application is not made clear by the marketing material. Additional information may include CAD drawings, installation photographs, installation videos, etc. At the request of the manufacturer, the DLC will review product specification sheets prior to an application submittal to determine eligibility for an existing primary use. Product specification sheets may be emailed to info@designlights.org with “Product Eligibility” in the subject line. Please note that the DLC cannot review any test data prior to submittal of the application fee, and a determination that a product is eligible in an existing primary use **does not** mean the product will qualify after the complete review.

2. The DLC and ENERGY STAR®

The DLC program began as a request from NEEP-region utility and energy efficiency programs to address LED lighting categories not covered by the ENERGY STAR® program. The DLC program focuses on commercial and industrial lighting, while ENERGY STAR remains a consumer market-focused program. If a product’s intended application is not represented by the DLC Technical Requirements, manufacturers should consult the ENERGY STAR program. The DLC and ENERGY STAR programs are separate entities, each with its own set of program requirements.

3. Primary Use Definitions

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires: Typically, street lights, parking lot lights. May be cobra-head shaped, shoebox, etc.

Outdoor Pole/Arm-Mounted Decorative Luminaires: Commonly, in-town street lights, may be acorn-shaped, etc.

Outdoor Full-Cutoff Wall-Mounted Area Luminaires: Typically walkway or security lights, affixed to building wall. May be box-shaped. These products produce no uplight.

Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires: Typically walkway or security lights, affixed to building wall. May be box-shaped. The products produce a non-negligible amount of uplight.

Bollards: Architectural outdoor luminaires comprising short, upright ground-mounted units, typically giving off light from the top or the sides, and used to illuminate walkways, steps, or pathways.

Parking Garage Luminaires: Ceiling-mounted luminaires for use outdoors or in locations open to the elements in multi-deck garages.

Fuel Pump Canopy Luminaires: Ceiling-mounted luminaires for use outdoors or in structures open to the elements in gas station canopies.

Landscape/Accent Flood and Spot Luminaires: Small, low-lumen, directional luminaires intended to highlight objects and areas in outdoor lighting. Manufacturers must follow NEMA guidelines for declaring beam spread.

Architectural Flood and Spot Luminaires: Directional luminaires intended to highlight objects and areas in outdoor lighting. May include billboard lighting. Manufacturers must follow NEMA guidelines for declaring beam spread.

Stairwell and Passageway Luminaires: Corner- or surface-mounted luminaires that provide lighting in stairwells and passageways. Luminaires must meet one of the following conditions: include integral controls, operate off of remote sensors where remote sensor is packaged together with the luminaire under a single model number, or be designed to operate off of remote sensors, where the luminaire and sensors are sold separately, but the luminaire has features enabling communication with a remote sensor. Controls must assure the luminaire reverts to lower-power, lower-light output state when there are no occupants in the vicinity.

Wall-Wash Luminaires: Luminaires designed to illuminate walls in interior spaces.

Track or Mono-point Luminaires: Usually ceiling-mounted tracks or fixed single head. Adjustable aim “cans”. Complete LED luminaires (not replacement lamps in existing cans such as PAR 38 or MR16 lamps).**If your product does not meet this definition you may qualify under ENERGY STAR’s Recessed Downlight or Surface Mounted with Directional Head primary use.***

Vertical Refrigerated Case Luminaires-center: Strip lights in refrigerator cases, vertically mounted along refrigerator case door mullions. Primary use covers only complete luminaires, with all necessary components. Replacement lamps are not currently eligible under this primary use.

Vertical Refrigerated Case Luminaires-end: Strip lights in refrigerator cases, vertically mounted along refrigerator case door mullions. Primary use covers

only complete luminaires, with all necessary components. Replacement lamps are not currently eligible under this primary use.

Horizontal Refrigerated Case Luminaires: Strip lights in refrigerator cases, horizontally mounted along refrigerator case shelves or canopies. Primary use covers only complete luminaires, with all necessary components. Replacement lamps are not currently eligible under this primary use.

Display Case Luminaires: Strip lights, usually mounted horizontally at frame edges of glass case. Replacement lamps such as MR16 or PAR 38 lamps are not eligible.

2x2, 1x4, 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces: Common recessed, suspended, or surface-mounted luminaires intended to provide ambient lighting in settings such as offices spaces, schools, retail stores, and other commercial environments. Products submitted in these categories must meet the stated form factors with a tolerance of ± 4 inches.

Direct Linear Ambient Luminaires: Suspended- or surface-mounted luminaires or recessed luminaires, no wider than 12", designed to provide direct lighting in indoor spaces. Products may be designed to be installed end-to-end to create long chains, and may be described as direct, indirect, semi-direct, semi-indirect, or general ambient, depending on intended lighting distribution. Utilitarian "strip" style fixtures are also eligible under this primary use. Products intended for cove lighting are not currently eligible under this primary use.

Linear Ambient Luminaires with Indirect Component: Suspended-mounted luminaires or recessed luminaires, no wider than 12", designed to provide ambient lighting in indoor spaces, including an intentional lighting component that is indirect. Products may be designed to be installed end-to-end to create long chains, and may be described as indirect, semi-direct, semi-indirect, direct-indirect, indirect-direct, or general ambient, depending on intended lighting distribution. Utilitarian "strip" style fixtures are not eligible under this primary use. Products intended for cove lighting are not currently eligible under this primary use.

High-Bay Luminaires for Commercial and Industrial Buildings: Pendant, recessed, or surface-mounted luminaires, specific for indoor high ceiling spaces (intended for ceilings ≥ 25 feet).

Low-Bay Luminaires for Commercial and Industrial Buildings: Pendant, recessed, or surface-mounted luminaires, specific for indoor ceiling spaces (intended for ceilings < 25 feet).

High-Bay Aisle Luminaires: Pendent or surface-mounted luminaires specific for indoor high ceiling spaces (intended for ceilings ≥ 25 feet), in settings that require the lighting of aisles.

Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Outdoor Pole/Arm-Mounted Decorative Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaire. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Large Outdoor Pole/Arm-Mounted Area and Roadway Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Outdoor Full-Cutoff Wall-Mounted Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Parking Garage Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Fuel Pump Canopy Luminaires: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Integrated-Style Retrofit Kits for 2x2, 1x4, 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces: Troffer retrofit kits that replace all reflectors and optical systems of the existing luminaire, effectively creating a completely new luminaire.

Linear-Style Retrofit Kits for 2x2, 1x4, 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces: Tube-shaped or strip-style retrofit kits for troffers. Products in this primary use do not replace the optical systems of the existing luminaire, and leave the basic form of the existing luminaire intact.

Retrofit Kits for Direct Linear Ambient Luminaires: Retrofit kits for “strip” luminaires and other types of linear ambient luminaires. Do not employ existing lamp holders or “pin” bases.

Retrofit Kits for High-Bay Luminaires for Commercial and Industrial Buildings: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Retrofit Kits for Low-Bay Luminaires for Commercial and Industrial Buildings: Integrated-style kits that replace all reflectors and optical systems of existing luminaires. Not screw-in “lamps” intended as HID replacements.

Linear Replacement Lamps (“plug and play”) (UL Type A): Four- and two-foot “tubes” designed to replace four- or two-foot fluorescent lamps, respectively. Products in this primary use employ lamp holders to connect to the fixture being retrofitted and are designed to be “plug and play” replacements for fluorescent lamps. That is, products in this category can operate off an existing fluorescent ballast, and do not require mechanical or electrical changes to the fixture. Note that due to testing considerations, at this time only products that can operate off electronic instant start ballasts are eligible. Replacement lamps designed to operate off existing magnetic ballasts, or off other types of electronic ballasts, are not eligible. Please note reference to UL type is derived from UL 1993, 4th edition, 2012-12-04 Section SA6.13.1. (See Replacement Lamps page for more detail on testing requirements)

Internal-driver/Line Voltage Linear Lamp-Style Retrofit Kits (UL Type B): Four- and two-foot “tubes” designed to replace four- or two-foot fluorescent lamps, respectively. Products in this primary use employ lamp holders to connect to the fixture being retrofitted, but do not operate off the existing fluorescent ballast. These products require rewiring of the existing fixture to bypass the ballast and send line voltage directly to the lamp holders. Please note reference to UL type is derived from UL 1993, 4th edition, 2012-12-04 Section SA6.13.1. (See Replacement Lamps page for more detail on testing requirements)

NOTE** Internally-driven lamps that can operate either off a fluorescent ballast or off line-voltage will be denoted as “Dual Mode” on the QPL. Products must be tested under worst-case operating condition.

External-driver Linear Lamp-Style Retrofit Kits (UL Type C): Four-foot or two-foot LED “tubes” designed to replace four-foot or two-foot fluorescent lamps, respectively. Products in this category employ lamp holders to connect to the fixture being retrofitted, do not operate off the existing fluorescent ballast, and require rewiring of the existing fixture to replace the ballast with an external driver. The lamp holders are then wired to receive only the low-voltage electricity that is supplied by that external driver. Note that due to testing considerations, only one- or two-lamp four-foot lamp systems, or one- and three-lamp two-foot lamp systems are eligible. Development of provisions for systems with alternative numbers of lamps operating off single drivers is under consideration. Please note reference to UL type is derived from UL 1993,

4th edition, 2012-12-04 Section SA6.13.1. (See Linear Replacement Lamps page for more detail on testing requirements)

Dual Mode Internal Driver Linear Replacement Lamps (UL Type A Four-foot or two-foot LED “tubes” designed to replace four-foot or two-foot fluorescent lamps, respectively. Products in this category have the ability to operate off the existing fluorescent ballast and also have the ability to operate off of line voltage if the troffer is rewired to bypass the ballast. These products connect to the troffer using standard pin-base connections to the lamp holders. Note that at this time only products that can operate off electronic instant start ballasts are eligible. Products that are designed to operate off magnetic or non-instant start electronic ballasts are not eligible. Please note reference to UL type is derived from UL 1993, 4th edition, 2012-12-04 Section SA6.13.1. (See Linear Replacement Lamps page for more detail on testing requirements)

Mogul Screw-Base Replacements for HID Lamps for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in outdoor pole/arm-mounted area and roadway luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Full-Cutoff Wall-Mounted Area Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in outdoor wall-mounted area luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Decorative Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in outdoor decorative luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Parking Garage Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in parking garage luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Fuel Pump Canopy Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in fuel pump canopy luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for High-bay Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in high-bay luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Low-bay Luminaires (Internal Driver/Type B): LED replacement lamps for HID lamps which require the existing HID ballast to be bypassed and the lamp holder to be wired with line voltage, used in low-bay luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in outdoor pole/arm-mounted area and roadway luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in outdoor pole/arm-mounted area and roadway luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Full-Cutoff Wall-Mounted Area Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in outdoor full-cutoff wall-mounted area luminaires. Only mogul-base (E39)

products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Outdoor Decorative Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in outdoor decorative luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Parking Garage Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in parking garage luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Fuel Pump Canopy Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in fuel pump canopy luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for High-bay Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in high-bay luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

Mogul Screw-Base Replacements for HID Lamps for Low-bay Luminaires (External Driver/Type C): LED replacement lamps for HID lamps which require the existing HID ballast to be replaced with an external LED driver (the lamp holder is not wired with line voltage), used in low-bay luminaires. Only mogul-base (E39) products are eligible at this time. Lamps are only considered qualified in the end-uses they are listed in.

III. **DLC Classifications**

1. **DLC Standard Classification**

Products submitted under the DLC Standard classification are reviewed under the DLC Standard requirements listed on the [Technical Requirements Table](#).

Standard classification applications include the data and materials requirements listed on the [Single Product](#) and [Family Grouping](#) web pages.

2. DLC Premium Classification

DLC Premium is a higher-performance classification for luminaires and retrofit kits. Products submitted to the DLC Premium classification must meet higher efficacy and lumen maintenance requirements outlined in the [Technical Requirements Table](#) and must also provide a driver ISTMT and information about integral controls, in addition to meeting all of the base requirements. If a manufacturer seeks qualification of its products to the DLC Premium classification, it must provide all the necessary testing to demonstrate the products meet the higher classification's additional requirements.

Additional detail on DLC Premium requirements can be found on the [DLC Premium web page](#) and the [Technical Requirements Table](#).

IV. Understanding Testing Principles

For all primary uses, the DLC requires three main test reports to accompany an application: IES LM-79-08 (LM-79), In-situ Temperature Measurement Test (ISTMT), and IES LM-80. Each test reports must include a unique, relevant part number, as well as a test date and test location. Please note that the DLC follows the [ENERGY STAR Guidance](#) for lumen maintenance testing, including:

- LM-80 and ISTMT test procedures
- Content and application of LM-80 reports
- Successor devices

I. Photometric and Electric Testing (LM-79)

The *LM-79 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products* includes three sections: Section 9: Total Flux Measurements; Section 10: Luminous Intensity Measurements; and Section 12: Color Characteristics Measurements. Manufacturers must also submit the IES file containing Section 10 measurements to verify compliance with the zonal lumen density or spacing criteria requirements.

II. Lumen Maintenance (ISTMT, LM-80, TM-21)

1. In-situ Temperature Measurement Test (ISTMT)

The ISTMT is a test method derived from safety testing standards, such as ANSI/UL 1598, which measures the hottest LED package/module/array in the luminaire/retrofit/lamp system. The ISTMT must be conducted with the luminaire installed in its appropriate application, as defined in the appropriate safety standard.

a) Temperature Measurement Point

LED package/model/array manufacturers designate specific locations on the product as alternate points for measuring the junction temperature of the LED package/module/array. The alternate points for measuring the junction temperature are collectively referred to as the TMP_{LED} , and vary from manufacturer to manufacturer. For example, some manufacturers use the solder point (t_s), package case temperature (t_c), or board temperature (t_b). However, all TMP_{LED} locations serve the same purpose: to correlate an external temperature to the junction temperature, which is used to determine the LED lumen maintenance. To use the TMP_{LED} to determine LED lumen maintenance, the TMP_{LED} used during the ISTMT must match the TMP_{LED} used during the LM-80.

To verify that the TMP_{LED} was placed correctly and matches the TMP_{LED} used during the LM-80, all applications must include a photograph that clearly illustrates the thermocouple placement during the ISTMT, as well as a schematic diagram illustrating the LED package/module/array manufacturer's specified TMP_{LED} .

2. LM-80

The *LM-80 Approved Method: Measuring Lumen Maintenance of LED Light Sources* requires that LED packages/modules/arrays be operated for at least 6,000 hours, at a minimum of 3 case temperatures: 55 °C, 85 °C, and a third temperature determined by the manufacturer. Light output, forward voltage, and other performance metrics are measured and recorded at roughly every 1,000 hours for a minimum of 6,000 hours.

3. TM-21

The *TM-21 Projecting Long Term Lumen Maintenance of LED Light Sources* is a standard that relates ISTMT results to LM-80 data to determine the long-term lumen maintenance of an LED light source. TM-21 applies an exponential least squares curve-fit through the average values provided in the LM-80. Luminous flux measurements may be projected to 5.5 or 6 times the LM-80 test length, depending on the number of samples reported in the LM-80. For 20 or more samples, projections may be 6 times the LM-80 test duration; for 10-19 samples, projections may be 5.5 times the LM-80 test duration. TM-21 does not apply to tests with fewer than 10 samples.

4. Evaluating Lumen Maintenance

The DLC determines compliance with the 50,000-hour lumen maintenance requirement through either Option 1: Component Performance or Option 2: Luminaire Performance.

a) Option 1: Component Performance

Component Performance allows the manufacturer to demonstrate compliance with the lumen maintenance requirements by providing an ISTMT (described above), LM-80 report for the package/module/array used in the luminaire/retrofit/lamp system, and completed copy of the ENERGY STAR TM-21 calculator.

To evaluate Component Performance compliance, the following conditions must be met:

- (1) The highest measured temperature in the ISTMT must fall below the highest measured case temperature in the LM-80.
- (2) The TMP_{LED} location in the ISTMT must match the TMP_{LED} location in the LM-80 and the LED manufacturer’s specified location.
- (3) The LED drive current in the luminaire/retrofit/lamp system must be less than or equal to the LED drive current measured in the LM-80.
- (4) The lumen maintenance at time (t) calculated in the ENERGY STAR TM-21 calculator must be greater than or equal to the corresponding lumen maintenance percentage at the projected end point listed in the table below.

Projected End Point	Required Lumen Maintenance for 50,000 Hours
33,000	≥ 79.03%
36,000	≥ 77.35%
38,500	≥ 75.98%
42,000	≥ 74.11%
44,000	≥ 73.06%
48,000	≥ 71.01%
49,500	≥ 70.25%
50,000	≥ 70.00%

b) Option 2: Luminaire Performance

In instances where Option 1: Component Performance is not applicable, as with products using secondary optics with remote phosphors or when LM-80 data is unavailable, manufacturers may demonstrate compliance with the lumen maintenance requirements through Luminaire Performance. Luminaire Performance requires luminaire-level testing according to the IES LM-84-14 *Approved Method: Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and*

Luminaires test standard and applying the IES TM-28-14 *Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaires* projection methodology. For Option 2, DLC uses a pass/fail threshold for lumen maintenance compliance. The projection from TM-28 must project to at least 6,000 hours and the lumen maintenance projection at the projection end point must be consistent with an L₇₀ of 50,000 hours. If choosing Option 2 for lumen maintenance determination, please contact DLC at info@designlights.org.

c) Multiple LEDs

Products employing multiple types of white-light LEDs are eligible under the following conditions: 1) the types and quantities of the LED packages/modules/arrays are known, and 2) the LEDs are not dynamically controlled, other than for dimming purposes. That is, products where variable numbers of LEDs are dynamically chosen and therefore the precise construction of any give product is not defined are not eligible; nor are products that are designed to be color-tunable. Policy development for appropriate evaluation of each of these situations is under consideration.

For products using multiple LED types, an LM-80, ISTMT, and TM-21 projection will be needed for each type of LED present in the product. As per normal thermal testing rules, ISTMTs must be conducted on the hottest LED of each type. Each LED must demonstrate the necessary L70 of the primary use the product is seeking qualification.

V. Primary Use-Specific Testing Principles

In addition to the general testing principles outlined under [Understanding Testing Principles](#) above, the DLC also sets primary use-specific testing requirements.

I. Retrofit Kits

The DLC will accept QPL applications for SSL retrofit kits. Manufacturers have two options for testing retrofit kits, defined below as [Option A](#), testing in Approved or Pre-Approved Equivalent Housings or [Option B](#), testing in a manufacturer-selected housing.

All Retrofit Kit applications, regardless of the option chosen for testing, must also include the following:

Installation Instructions

Installation instruction sheets must be submitted with the application to indicate how the retrofit kit will be installed in an existing fixture in the field. These installation instructions must be the same ones provided to customers and installers in the market.

Safety Certification Documentation

Documentation of safety certification for the retrofit kit must be submitted with the application. This documentation must indicate safety certification has been obtained from an applicable safety certification organization. DLC staff will not interpret safety *testing* as proof that safety certification has been obtained.

1. Option A: Testing in Approved or Pre-Approved Equivalent Housings (General Purpose)

Option A is intended for retrofit kits that are designed to retrofit typical incumbent luminaires. The testing and reporting requirements described below are intended to subject retrofit kits to conditions in typical fixtures in order to assure confidence in performance.

For this option, the DLC specifies typical fixture housings in which retrofit products are to be tested, referred to as [Approved Housings](#). This is done to provide testing results under common conditions in which the retrofit kits would be installed. In providing this list of typical fixture housings, the DLC does not endorse or exclude any particular make or model frame for use in energy efficiency programs. Note that each recommended variation includes the statement, “or Pre-approved Equivalents” is also listed as an option. In selecting a fixture for testing, the applicant shall consider the purpose of subjecting the tested kit to extreme confinement for thermal endurance.

Retrofit kits tested in an approved, or pre-approved equivalent, housing are considered qualified when installed in any housing of the same end-use. For example, a shoe-box style retrofit kit tested in the Lithonia KAD Contour Series approved housing, would be considered qualified (should it meet all technical requirements) when installed in any application applicable to the “Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires” Primary Use designation. If a retrofit kit can be used in multiple Primary Uses, manufacturers will need to provide testing in a housing applicable to each Primary Use in order to be considered qualified in those end-uses. Products tested according to Option A will be designated as “General Purpose” on the QPL.

Manufacturers shall test and report fixture performance under the following restrictions and conditions:

Required Tests and Reports

All DLC QPL testing and reporting requirements that apply to new fixtures shall also apply to any retrofit kit application: e.g., LM-79, ISTMT, IES file, TM-21 projection. (Note that for lumen maintenance testing, the source manufacturer is responsible for the LM-80 test of the LED package, array, or module. A report resulting from this test must be passed on to the DLC by the applicant, as

specified in the application instructions.) LM-79 reports for retrofit kits should be submitted directly by the applicant to DLC, not via LED Lighting Facts.

Fixture Level Tests

LM-79 and ISTMT (or Option 2 lumen maintenance determination, if selected), shall be conducted in a fully functional reference fixture with the kit properly installed per manufacturer’s instructions.

Retrofit kits need to be tested in (i.e. supply an LM-79, ISTMT, IES file from testing in) only *one* of the fixtures approved, or pre-approved, below. The option you choose to use for [lumen maintenance](#) compliance will determine how many tests you need. If you choose Option 1: one LM-80 report and TM-21 projection is needed per LED package, array, or module as necessary according to the [multiple LEDs policy](#). If you choose Option 2: you will need to conduct luminaire-level testing of the retrofit kit installed in an approved fixture housing following the LM-84-14 test standard.

Option A Pre-Approved Equivalent

As noted, DLC does not endorse or exclude any particular make or model of reference fixture. Options are listed to illustrate common fixtures of that type. With approval from the DLC, manufacturers may test in alternative fixtures. Pre-approved fixtures must meet the following conditions:

Alternative fixtures must be commonly used in the application category intended to be applied for. Documentation may be required to demonstrate fixtures appropriate use if questions arise.

Alternative fixtures must provide similar thermal environments to those listed and may not be significantly different in internal volume or construction materials. Particularly, alternative fixtures may not be significantly different in internal volume or construction materials.

A list of pre-approved equivalent fixtures for each Primary Use will be maintained throughout each "Pre-Approved Equivalent" section of each retrofit kit category. Please refer to <https://designlights.org/content/QPL/ProductSubmit/RetrofitKits> for the most up to date list of pre-approved equivalent housings.

To request that a fixture be considered as a pre-approved equivalent for testing purposes, please send the spec sheet for the fixture to info@designlights.org, along with a spec sheet for your retrofit kit. DLC review staff may need additional details, depending on the request and details available in the spec sheet.

Option A Approved Housings for Retrofit Kit Primary Uses

Manufacturer shall select a fixture for testing based on the intended application of the retrofit kit:

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

- If the kit is specific to shoebox fixtures (not applicable to cobra-heads), choose a fixture from among those listed herein under shoebox.
- If the kit is specific to cobra-head fixtures (not applicable to shoeboxes), choose a fixture from among those listed herein under cobra-head.
- If the kit may be applied to both cobra-heads and shoebox fixtures, choose a fixture from among those listed herein under either shoebox or cobra-head.
- Kits designed for larger housings must demonstrate that they do not fit in the smaller housing sizes by submitting a CAD file with the kit installed in the reference small cobra-head.

CAD Files:

[Combo_Small.SLDASM](#)

[Combo_Small.pdf](#)

• **Cobra-Head Fixtures Retrofit Kits:**

- American Electric Roadway Series 115 Fixture
- GE M250R2 fixture
- Kim Archetype SAR
- Pre-approved equivalent*

• **Shoebox Fixtures Retrofit Kits:**

- WideLite XL Excel-Lyte 400
- Lithonia KAD Contour Series
- Lumark TR Tribute
- Kim Archetype SAR
- Pre-approved equivalent*

• **Retrofit Kits for Larger Size Housings:**

- American Electric Roadway Series 125 Fixture
- GE M400R2 fixture
- Ruud PR2-22
- Kim VLA29
- Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy to up to date pre-approved equivalents

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

Outdoor Decorative Luminaires

- Acorn, globe, etc. The kit shall be tested, fully and properly mounted in a glass or polymer globe with optics as similar as possible to the kit’s intended use.
 - King Luminaire K400 series
 - Lexalite Lindy Model 424
 - GE Patriarch Luminaire
 - Holophane GV Luminaires Washington PostLite
 - Pre-approved Equivalent*
- Lantern. The kit shall be tested, fully and properly mounted in a glass or polymer lantern with optics as similar as possible to the kit’s intended use.
 - Architectural Area Lighting Civic Lantern Series
 - Acuity Lighting TR25
 - Pre-approved Equivalent*
- Teardrop, bullet, etc. The kit shall be tested, fully and properly mounted in a glass or polymer teardrop with optics as similar as possible to the kit’s intended use.
 - Holophane Port Huron
 - HE Williams OGL
 - Acuity Lighting (Antique Street Lamps) CM
 - Pre-approved Equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Outdoor Full-Cutoff Wall-Mounted Area Luminaires

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - Lithonia TWF1 100S
 - Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

Parking Garage

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
- HID Reference Luminaries:
 - Lithonia VRC70ML 120/277 M6
 - Lithonia KACM Series Fixture
 - Cooper CL/CS Series Fixture
 - Pre-approved equivalent*
- Fluorescent Reference Luminaires:
 - LSI PGF Series
 - Lithonia VAP Series
 - GE VP8 Series
 - Columbia XEP Series
 - Pre-approved Equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

Fuel Pump Canopy

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - LSI Scottsdale Series Fixture
 - Whiteway Civis Series Fixture
 - LSI Richmond Series Fixture
 - ElSCO Merritt Series Fixture
 - Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - Lithonia 2GT8 lensed 2X2
 - Lithonia 2SP8 lensed 2X2

- Lithonia 2PM3 9 cell 2x2 parabolic
- Cooper Metalux 2GC8 lensed 2x2
- Cooper MetalUx 2HP3 9 cell 2x2 parabolic
- Columbia Lighting lensed 4PS22
- Columbia Lighting P222 9 cell parabolic
- Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Please note that under the Technical Requirements V3.0 and higher, troffer retrofit kits will be categorized according to whether they are simple, “strip” style kits that replace the light source, but leave the existing troffer’s optical system mostly intact, or whether they replace and retrofit the entire fixture, including a new optical system. For more information about these designations, please see the [Category Definitions](#) page.

To update the listing of qualified retrofit kits to the Technical Requirements V3.0 categorizations, please download the [Tube and Retrofit Kit Update Application Form \(xlsx\)](#), complete it, and submit it through the online portal along with your specification sheet, installation instructions, and self-certification statement. For the name of the application, under the “Application Details” section of the online form, please indicate that this is an “Update Submission.”

1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - Lithonia GT8 lensed 1X4
 - Columbia Lighting lensed 4PS14
 - Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Please note that under the Technical Requirements V3.0 and higher, troffer retrofit kits will be categorized according to whether they are simple, “strip” style kits that replace the light source, but leave the existing troffer’s optical system mostly intact, or whether they replace and retrofit the entire fixture, including a new optical system. For more information about these designations, please see the [Category Definitions](#) page.

To update the listing of qualified retrofit kits to the Technical Requirements V3.0 categorizations, please download the [Tube and Retrofit Kit Update](#)

[Application Form \(xlsx\)](#), complete it, and submit it through the online portal along with your specification sheet, installation instructions, and self-certification statement. For the name of the application, under the “Application Details” section of the online form, please indicate that this is an “Update Submission.”

2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - Lithonia 2GT8 lensed 2X4
 - Lithonia 2PM3N 12 cell 2x4 parabolic
 - Cooper Metalux 2GC8 lensed 2x4
 - Cooper Metalux 2HP3 12 cell 2x4 parabolic
 - Columbia Lighting lensed 4PS24
 - Columbia Lighting P224 12 cell parabolic
 - Pre-approved equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Please note that under the Technical Requirements V3.0 and higher, troffer retrofit kits will be categorized according to whether they are simple, “strip” style kits that replace the light source, but leave the existing troffer’s optical system mostly intact, or whether they replace and retrofit the entire fixture, including a new optical system. For more information about these designations, please see the [Category Definitions](#) page.

To update the listing of qualified retrofit kits to the Technical Requirements V3.0 categorizations, please download the [Tube and Retrofit Kit Update Application Form \(xlsx\)](#), complete it, and submit it through the online portal along with your specification sheet, installation instructions, and self-certification statement. For the name of the application, under the “Application Details” section of the online form, please indicate that this is an “Update Submission.”

* Please note: DLC defines all tube-style products that use the lamp holders (i.e. sockets or tombstones) in the luminaire to mechanically or electrically connect to the fixture housing and electric supply to fall under the linear replacement lamps categories. Only retrofit products that do not connect to the troffer using lamp holders kits will be eligible under the retrofit kit categories.

Linear Ambient Luminaires

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - Strip-style Luminaires:
 - Columbia CS Bi-Pin 2L/li>
 - Lithonia C2 32 MVOLT GEB10IS
 - GE UlstraStar SR84230
 - Pre-Approved Equivalent*
 - Enclosed Linear Luminaires:
 - Lithonia VSL 2 32 MVOLT GEB10IS
 - Lithonia DMS2 48T8HO MVOLT GEB10PS
 - Pre-approved Equivalent*
 - Suspended Linear Luminaires:
 - Peerless LLML Suspended
 - Alera Lighting Microlyne M Cable Mount
 - Alcon Beam 44 Series 10107
 - Pre-approved Equivalent*
 - Wrap-style Luminaires:
 - Lithonia NEW 232
 - Lithonia 3324 217W and 3348 2L32W
 - Lithonia L8 217 and L8 232
 - Columbia AWN Series
 - Pre-approved Equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

High-Bay Luminaires

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
 - HID Reference Luminaires:
 - Lithonia THD 400S A15 TB
 - Lithonia THR 400S PA22 TB
 - Pre-Approved Equivalent*
 - Fluorescent Reference Luminaires:
 - Columbia LHC164-4

- Columbia LHV4-4
- Lithonia FGB Series
- Lithonia MS8 Series
- Pre-approved Equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

Low-Bay Luminaires

- The kit shall be tested, fully and properly mounted in a fixture as similar as possible to the kit’s intended use.
- HID Reference Luminaires:
 - Lithonia TXC 250S A23 TB
 - Lithonia TGR 175MP A125 TB SCWA
 - Pre-approved Equivalent*
- Fluorescent Reference Luminaires:
 - Lithonia L Series
 - GE Ultrastar ES Series
 - Pre-approved Equivalent*

*The fixtures listed under “pre-approved equivalent” have been requested by applicants and approved for use in retrofit kit testing. Refer to [Retrofit Kit](#) policy for up to date pre-approved equivalents.

Note that at this time, DLC does not qualify screw-in “lamps” intended as HID replacements as retrofit kits.

2. Option B: Testing in a Manufacturer-Selected Housing (Luminaire Specific)

DLC understands that not all retrofit kits are designed for the typical housings described above in Option A testing. If a retrofit kit is designed for a specific housing that is not represented by the approved housings listed above, and does not meet the conditions of the pre-approved equivalent process, manufacturers may select a different housing that is appropriate and representative of the housing the retrofit kit would be installed in the field.

Products tested via Option B are only considered qualified when installed in the specific housing used for testing. Additional testing in each housing will be required if manufacturers would like to have a retrofit kit considered qualified

when installed in multiple housings under Option B. The spec sheet for the housing used for testing will be reviewed during the Initial Review process to ensure the housing is still within the intended use of the currently available retrofit kit Primary Use designations listed under the current [Technical Requirements Table](#).

DLC will determine if a retrofit kit is designed for a specific housing by reviewing the marketing material (i.e. product specification sheet) associated with the retrofit kit. Product specification sheets must clearly indicate for which specific housing the retrofit kit is intended. DLC reviewers may check web listing and other marketing materials, and reserve the right to request additional information to demonstrate the retrofit kit is only designed for a specific housing if product specification sheets are not sufficient.

Products tested according to Option B will be designated as “Luminaire Specific” on the QPL, with the housing used for testing listed in the Notes field.

Manufacturers shall test and report fixture performance under the following restrictions and conditions:

Required Tests & Reports

All DLC QPL testing and reporting requirements that apply to new fixtures shall also apply to any retrofit kit application e.g.: LM-79, ISTMT, IES file, TM-21 projection etc. (Note that for lumen maintenance testing, the source manufacturer is responsible for the LM-80 test of the LED package, array, or module. A report resulting from this test must be passed on to the DLC by the applicant, as specified in the application instructions.) LM-79 reports for retrofit kits are not required to submit to LED Lighting Facts.

Fixture Level Tests

LM-79, ISTMT (or Option 2 lumen maintenance determination, if selected), shall be conducted in a fully functional manufacturer-selected reference fixture with the kit properly installed per manufacturer’s instructions.

Retrofit kits need to be tested in (i.e. supply an LM-79, ISTMT, IES file from testing in) only *one* of the fixtures approved, or pre-approved, below. The option you choose to use for [lumen maintenance](#) compliance will determine how many tests you need. If you choose Option 1: one LM-80 report and TM-21 projection is needed per LED package, array, or module as necessary according to the [multiple LEDs policy](#). If you choose Option 2: you will need to conduct luminaire-level testing of the retrofit kit installed in an approved fixture housing following the LM-84-14 test standard.

II. Linear Replacement Lamps

DLC defines all tube-style products that use lamp holders (i.e. sockets or tombstones) in the luminaire to mechanically or electrically connect to the fixture housing and electric supply to fall under these testing requirements products that do not employ lamp holders will be classified as retrofit kits, regardless of form factor.

The testing and reporting requirements described below are intended to evaluate the performance of both the lamp itself, and its performance in an appropriate reference troffer, the most common application for fluorescent replacement lamps.

Replacement lamps will fall under one of the following four Primary Use designations described in the [Primary Use Definitions](#) section:

- Replacement Lamps (“plug and play”) (UL Type A)
- Internal Driver/Line Voltage Lamp-Style Retrofit Kits (UL Type B)
- External Driver Lamp-Style Retrofit Kits (UL Type C)
- Dual Mode Internal Driver (UL Type A and Type B)

For testing purposes, DLC requires testing both of the bare lamp, and of lamps installed in a typical fixture housing. These typical fixture housings are intended to provide testing results of the most common applications these products are used in, as well as representative thermal conditions in the fixtures that the lamps would be installed in. In specifying these particular fixture housings, DLC does not endorse or exclude any particular make or model frame for use in energy efficiency programs.

Applicants shall provide the following supporting documentation in addition to the test data described below.

1. Installation Instructions

Installation instruction sheets must be submitted with the application to indicate how the replacement lamp will be installed in an existing fixture in the field. This must be provided in addition to all necessary documentation required for other product categories. Lamps that require specialized components in order for installation to perform to the above criteria are not eligible for qualification. Lamps that employ rotatable end-caps are eligible, but must clearly indicate this feature in the product spec sheet.

2. Safety Certification Documentation

Documentation of safety certification for the replacement lamp must be submitted with the application. This documentation must indicate safety certification has been obtained. DLC staff will not interpret safety testing as proof that safety certification has been obtained. This must be provided in addition to all necessary documentation required for other product categories.

3. Application Review

DLC shall log, analyze and evaluate linear replacement lamp applications in accordance with procedures followed for any individual fixture application: 1) for completeness and accuracy of the filed application data and 2) for qualification according to DLC primary use specifications.

Applicants shall test and report performance under the following restrictions and conditions.

4. Lamp Level Tests

All lamps seeking qualification of the DLC must test the bare lamp according to LM-79.

Individual Lamp Criteria		
	Four-Foot Lamps	Two-Foot Lamps
System Efficacy	≥ 110 lm/W	≥ 110 lm/W
Initial Light Output	≥ 1,600 lm	≥ 800 lm
Correlated Color Temperature (CCT)	≤ 5000K	≤ 5000K
Color Rendering Index (CRI)	≥ 80	≥ 80
Power Factor	≥ 0.90	≥ 0.90
Total Harmonic Distortion	≤ 20%	≤ 20%
Warranty	≥ 5 years	≥ 5 years

5. Testing Notes

For Replacement Lamps designed to operate off existing fluorescent ballasts, testing must be conducted using a standard 0.88 ballast factor, electronic instant-start ballast. Specification sheets for the ballasts used during testing must be provided with the application and the ballast make and model number must be noted in the test report.

For lamp-style retrofit kits (i.e. products connecting mechanically and electrically via lamp holders, but which require an electrical modification to the existing fixture to bypass the existing ballast), "lamp"-level testing is also required. If the system is designed to operate multiple lamps off an external driver, the driver should be loaded as it would be in the field, with appropriate steps taken to calculate the efficacy of the single lamp. For example, for a two-lamp kit, one lamp should be measured for light output, while the system as intended (with two identical lamps on the driver) should be measured for electrical input. The wattage into the driver can then be divided by two, and that wattage divided into the lamp lumens to determine system efficacy. For questions, please contact info@designlights.org.

6. Fixture Level Tests

a) Four-Foot Linear Replacement Lamps

All lamps seeking qualification must be tested inside a reference troffer. Type A, Type B, and dual mode four-foot lamps shall test with two (2) lamps installed in an appropriate reference troffer. Type C lamps shall test with the appropriate number of lamps as are intended to be operated on the external driver included in that Type C system; 2-, 3-, and 4-lamp Type C systems are eligible.

The reference troffer may be any of the following:

- Lithonia 2GT8 lensed 2x4
- Lithonia 2PM3N 12 cell 2x4 parabolic
- Columbia Lighting lensed 4PS24
- Columbia Lighting P224 12 cell parabolic
- Pre-approved equivalent*

Pre-approved Equivalents

DLC does not endorse or exclude any particular make or model of reference fixture. Options listed are intended to illustrate common fixtures of the appropriate type. Manufacturers may test in alternative fixtures to those listed, with pre-approval from the DLC. Pre-approved fixtures must meet the following conditions:

Alternative fixtures must be commonly used in the application primary use intended to be applied for. Documentation may be required to demonstrate fixtures appropriate use if questions arise. Alternative fixtures must provide similar thermal environments to those listed. Particularly, alternative fixtures may not be significantly different in internal volume or construction materials.

In-situ Lamp Criteria for Four-Foot Linear Replacement Lamps	
Luminaire Efficacy (when 2 lamps are installed in reference troffer)	≥ 100 lm/w
Minimum Initial Luminaire Light Output (when 2 lamps are installed in reference troffer)	3,000 lm
Spacing Criteria	<u>Spacing Criteria:</u> 0-180° = 1.0 - 2.0 90-270° = 1.0 - 2.0 <u>Zonal Lumen Distribution:</u> 0-60° : ≥ 75%
Lumen Maintenance L ₇₀	50,000 hours

b) Two-Foot Linear Replacement Lamps

All lamps seeking qualification must be tested inside in a reference troffer. Type A, Type B, and dual mode two-foot lamps shall test with three (3) lamps installed in an appropriate reference troffer. Type C lamps shall test with the appropriate number of lamps as are intended to be operated on the external driver included in that Type C system; 2-, 3, and 4-lamp Type C systems are eligible.

The reference troffer may be any of the following:

- Lithonia 2GT8 lensed 2x2
- Lithonia 2SP8 lensed 2x2
- Lithonia 2PM3 9 cell 2x2 parabolic
- Columbia Lighting lensed 4PS22
- Columbia Lighting P222 9 cell parabolic
- Pre-approved equivalent*

In-situ Lamp Criteria for Two-Foot Linear Replacement Lamps	
Luminaire Efficacy (when 3 lamps are installed in reference troffer)	≥ 100 lm/W
Minimum Initial Luminaire Light Output (when 3 lamps are installed in reference troffer)	2,000 lm
Spacing Criteria	<u>Spacing Criteria:</u> 0-180° = 1.0 - 2.0 90-270° = 1.0 - 2.0 <u>Zonal Lumen Distribution:</u> 0-60° : ≥ 75%
Lumen Maintenance L ₇₀	50,000 hours

Pre-approved Equivalents

The DLC does not endorse or exclude any particular make or model of reference fixture. Options are listed to illustrate common fixtures of that type. With approval from the DLC, manufacturers may test in alternative fixtures. Pre-approved fixtures must meet the following conditions:

- Alternative fixtures must be commonly used in the application primary use for which the manufacturer intends to apply. Documentation may be required to demonstrate a fixture’s appropriate use.

- Alternative fixtures must provide similar thermal environments to those listed and may not be significantly different in internal volume or construction materials.

7. Lumen Maintenance

- LM-80 for the package/module/array (6,000 hours minimum)
- In-situ Temperature Measurement Test (ISTMT) in selected reference luminaire with two identical lamps for Four-Foot Linear Replacement Lamps or three identical lamps for Two-Foot Linear Replacement Lamps (only one is required to have thermocouple(s) attached)
- TM-21 Calculator, appropriately filled out (www.energystar.gov/tm21calculator)

8. Testing Notes

For Replacement Lamps designed to operate off existing fluorescent ballasts, testing must be conducted using a standard 0.88 ballast factor, electronic instant-start ballast. Specification sheets for the ballasts used during testing must be provided with the application and the ballast make and model number must be noted in the test report.

For lamp-style retrofit kits (i.e. products connecting mechanically and electrically via lamp holders, but which require an electrical modification to the existing fixture to bypass the existing ballast), "lamp"-level testing is also required. If the system is designed to operate multiple lamps off an external driver, the driver should be loaded as it would be in the field, with appropriate steps taken to calculate the efficacy of the single lamp. For example, for a two-lamp kit, one lamp should be measured for light output, while the system as intended (with two identical lamps on the driver) should be measured for electrical input. The wattage into the driver can then be divided by two, and that wattage divided into the lamp lumens to determine system efficacy. For questions, please contact info@designlights.org.

9. Update Applications to V3.0: Replacement Lamps

Under the V3.0 Technical Requirements, lamps will be categorized according to particular features of how they are installed and operate in the field. Specifically, the QPL will distinguish between products that are designed to operate off fluorescent ballasts, those that have internal drivers and are designed to operate off line voltage, and those that operate on external drivers. For more information, please see above, as well as the Category Definitions page. Products qualified under previous Technical Requirements, and therefore already on the QPL, are required to provide the necessary information to be re-categorized into the appropriate V3.0 designation. To update the listing of a product already on the QPL to the V3.0 appropriate

designation, please download the [Tube and Retrofit Kit Update Application Form \(xlsx\)](#), complete it, and submit it through the online portal along with your specification sheet, installation instructions, and self-certification statement. For the name of the application, under the "Application Details" section of the online form, please indicate that this is an "Update Submission."

There is a graduated fee structure for re-categorization requests, to encourage early updating of products. Please see the [Application Fees](#) page for more information. To ensure all received requests can be processed by the final transition date, update requests will not be accepted after February 19, 2016. Products that are not updated will be de-listed as of March 25, 2016.

III. Screw-Base Replacements for HID Lamps

DLC will accept QPL applications for mogul (E39) screw-base replacement lamps. At this time, both medium (E26)-base lamps, and lamps that are intended to operate off the existing HID ballast ("Type A" lamps) are excluded. These product types remain under consideration for future development; "Type B" products (with internal drivers that operate directly off line voltage) and "Type C" products (with external drivers that replace the HID ballast in the circuit) are eligible (see [definitions](#)). The testing and reporting requirements described below are intended to subject the lamps to conditions in typical luminaires in order to assure confidence in performance.

For testing purposes, DLC specifies typical "reference" luminaire housings for lamp products to be tested in. This is done to provide testing results under common conditions that the lamps would be installed in. In providing this list of typical luminaire housings, DLC does not endorse or exclude any particular make or model frame for use in energy efficiency programs. Note that in each recommended variation we state, or "Pre-approved Equivalent". In selecting a luminaire for testing the applicant shall consider the purpose of subjecting the tested lamp to extreme confinement for thermal endurance. If a product demonstrates necessary performance in a given luminaire, the product will be considered qualified in that luminaire and in luminaires of similar types and applications, only. The product will not be considered generically qualified, nor qualified in other applications, unless the product is tested, demonstrates necessary performance, and is also listed on the DLC QPL in that application.

Applicants shall test and report luminaire performance under the following restrictions and conditions:

Required Tests and Reporting

All DLC QPL testing and reporting requirements that apply to new luminaires shall also apply to any lamp application e.g.: LM-79, ISTMT, IES file, TM-21 projection etc. (Note that for lumen maintenance testing, the source manufacturer is responsible for the LM-80

test of the LED package, array, or module. A report resulting from this test must be passed on to the DLC by the applicant, as specified in the application instructions.) LM-79 reports for lamps should be submitted directly by the applicant to DLC, not via LED Lighting Facts.

Luminaire Level Tests

Lamps need to be tested in (i.e. supply an LM-79, ISTMT, IES file from testing in) only one of the luminaires approved above in section V.A.6. The option you choose to use for lumen maintenance compliance will determine how many tests you need. If you choose Option 1: one LM-80 report and TM-21 projection is needed per LED package, array, or module as necessary according to the [multiple LEDs policy](#). If you choose Option 2: you will need LM-84 testing and TM-28 projections, with LM-80 testing and TM-21 projections as necessary.

Installation Instructions

Installation instruction sheets must be submitted with the application to indicate how the lamp will be installed in an existing luminaire in the field. These installation instructions must be the same ones provided to customers and installers in the market.

VI. Laboratory Requirements

The DLC requires that product testing be conducted at a laboratory appropriate for the performance being evaluated. Laboratories must be approved or accredited by organizations knowledgeable of the appropriate testing conditions, testing equipment, and staff competencies necessary for accurate measurements. Below are details regarding the accreditation requirements of a laboratory for each of the test methods described in the [Understanding Testing Principles](#) section.

The DLC does not endorse any laboratory meeting these requirements. Laboratories representing the ability to qualify products and laboratory test reports indicating product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC. DLC reviewers reserve the right to request documentation confirming testing conditions or to confirm testing has been conducted by a laboratory that meets these requirements at the time of testing.

Test Laboratory Requirements As of October 22, 2013	
In-situ Temperature Measurement Test (ISTMT)*	DLC will accept ISTMT results from laboratories meeting at least one of the following requirements: <ul style="list-style-type: none"> • Approved by OSHA as Nationally Recognized Testing Laboratories (NRTLs).

	<p>To find a list of OSHA NRTLs, visit: https://www.osha.gov/dts/otpc/nrtl/</p> <ul style="list-style-type: none"> • Approved through an OSHA NRTL data acceptance program or OSHA Satellite Notification and Acceptance Program (SNAP). • Accredited for ANSI/UL 1598 or CSA C22.2 No. 250.0-08, including Sections 19.7, 19.10-16, by an accreditation organization that is an ILAC-MRA Signatory. <p><i>*Note these requirements are applicable to laboratories conducting both LED ISTMTs and Driver ISTMTs</i></p>
<p>LM-79</p>	<p>DLC will accept LM-79 results from laboratories listed in the DOE LED Lighting Facts[®] Approved Testing Laboratories List under LM-79 sections 9, 10, and 12. Testing must be conducted within the accreditation effective and expiration dates detailed for a given laboratory.</p> <p>To find the LED Lighting Facts Approved Testing Laboratories List, visit: www.lightingfacts.com/approvedlabs</p>
<p>LM-80</p>	<p>DLC will accept LM-80 results from laboratories listed as EPA-Recognized Laboratories for LM-80.</p> <p>Note: DLC refers to ENERGY STAR Program Guidance Regarding LED Package, LED Array, and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products when determining applicability of LM-80 data for submitted products.</p> <p>To find the list of EPA-Recognized Laboratories for LM-80, visit https://data.energystar.gov/dataset/EPA-Recognized-Laboratories-For-Lighting-Products/jgwf-7qrr, and filter the “Area of Recognition” column by “LED package, module or array (IES LM-80-2008).”</p>

The Testing Laboratory Requirements above are effective as of October 22, 2013. Manufacturers may submit testing conducted at a laboratory meeting these requirements in support of a DLC product application at any time moving forward.

A grace period will be extended to industry to simplify the complete transition to these new requirements. Test reports from laboratories meeting the previous requirements will be accepted on testing conducted prior to January 1, 2014. Testing conducted after January 1, 2014, will only be accepted if the laboratory meets the new requirements. Note that for LM-80 reports, this means testing started prior to January 1, 2014 will continue to be accepted if conducted by a laboratory meeting the previous requirements.

In addition to the Testing Laboratory Requirements above, as of July 17, 2015, DLC testing requirements may also include LM-84-14 if choosing Option 2 lumen maintenance determination. Below are the requirements as of July 17, 2015 for laboratories conducting LM-84-14 testing.

Test Laboratory Requirements As of July 17, 2015	
LM-84	<p>DLC will accept LM-84 results from laboratories that meet both of the following:</p> <ul style="list-style-type: none"> • Listed in the DOE LED Lighting Facts® Approved Testing Laboratories List under LM-79 sections 9, 10, and 12 • Accredited for LM-84-14 by an accreditation body recognized by LED Lighting Facts. <p>Testing must be conducted within the accreditation effective and expiration dates detailed for a given laboratory. To find the LED Lighting Facts Approved Testing Laboratories List, visit: www.lightingfacts.com/approvedlabs</p>

Below are the Testing Laboratory Requirements that can be applied to test reports from laboratories with a test date prior to January 1, 2014.

Independent Testing Lab Requirements Applicable to testing conducted prior to January 1, 2014	
In-situ Temperature Measurement Test (ISTMT)	<p>Similar to ENERGY STAR requirements prior to September 30, 2010, the DLC will accept ISTMT results from laboratories:</p> <ul style="list-style-type: none"> • Approved by OSHA as Nationally Recognized Testing Laboratories (NRTLs). • Accredited by NVLAP for the LM-79-08 test procedure. • Recognized through UL’s Data Acceptance Program. (Referenced in the ENERGY STAR Manufacturer’s Guide, pg. 7)
LM-79	<p>Testing must be conducted at a laboratory listed in the LED Lighting Facts Approved Testing Laboratories List under LM-79 sections 9,10, and 12. Testing must be conducted within the laboratory’s accreditation effective and expiration dates.</p>
LM-80	<p>The DLC will accept LED package in-house testing from the LED package/module/array manufacturer.</p>

VII. Application Process Overview

I. Prequalification Activities

To submit a product to be added to the QPL, please review this guide and the resources on the DLC QPL section of the [DLC website](#) to understand the DLC application process, including product performance requirements, supporting documentation requirements, and appropriate application fees. Below is an overview of the process:

Step 1: [Create Manufacturer Login](#)

Step 2: Make sure your product is eligible.

Review the available Primary Uses and technical requirements. Your product must be marketed as and intended for a Primary Use to be eligible for qualification. If you are unsure if your product is eligible, please review the [Category Eligibility](#) section.

Step 3: Read the Application Instructions

These instructions will guide you through the file uploading process and explain the details of the application form. Applications cannot be reviewed until all required documents are submitted to the DLC. Ensuring all application materials are uploaded the first time will result in the most efficient review of the documents. The DLC two-week turnaround applies only when the application submission is complete.

Step 4: Read the Lab Testing Requirements page

This [web page](#) lists the testing laboratory requirements for the LM-79, ISTMT, and LM-80 (or LM-84) reports necessary for each application.

Step 5: Read the FAQ page

If you have additional questions after reviewing the Application Instructions, please read the [FAQ page](#). FAQs are updated regularly to reflect the most current DLC policies.

Step 6: Determine the appropriate application type: Single Product or Product Family Group

See [Application Types](#) for an explanation of each application type.

II. Submitting an Application

Step 7A: Complete the Application

The QPL application requirements are analogous to those of ENERGY STAR. The requirements have five main parts: application contact information, model information, photometric and electrical data, lumen maintenance, and document checklist. Each section must be completed and supported by the submission of documents listed: LM-79 test reports, LM-80 reports, ISTMT reports, and full IES files. See [application instructions](#) for information about the necessary documents and their validity requirements.

Step 7B: Submit Products to LED Lighting Facts

As of July 5, 2012, the DLC requires that products be listed with the LED Lighting Facts program to be listed on the DLC QPL. For single product applications, please follow the instructions under [Single Product Applications](#). For product family group applications, please follow the instructions under [Product Family Applications](#).

Step 8: Upload the Application Materials

Application forms are completed offline, then uploaded through the manufacturer's password-protected account. If you do not have an account, you may create one at the [Manufacturer Login Page](#).

Step 9: Make Payment

After you submit the application materials, a DLC reviewer will determine if the application and supporting documentation are complete. You will then receive an email containing an invoice and payment instructions. You may pay by credit card (preferred) or check. We accept VISA, MasterCard, American Express, and Discover.

Step 10: Receive Feedback from DLC Reviewer

In about 2 weeks, the reviewer will email you to let you know which of the following conditions applies to your application:

Condition 1: You are missing information, required information is insufficiently documented, there is an error on an independent lab test report, or the performance information shows the product does not meet the requirements. The reviewer will identify the specific areas in the application that need attention and allow you to fix problems and resubmit. An application showing product performance does not meet the Primary Use requirements may not be resubmitted; it must be submitted as a new application with updated application materials and the appropriate application fee.

Condition 2: You have completed the application properly and the product meets all DLC requirements. You will receive notification of qualification when the product is listed on the QPL. This application will then appear as complete in your account.

Step 11: Resubmit Application Materials

Applicants that fall under Condition 1 may make the appropriate changes to the offline form and submit the updated application materials to a DLC reviewer (note: this does not apply if the provided performance information shows the product does not meet the requirements).

Step 12: Receive Final Feedback

The reviewer will contact the manufacturer about the resubmitted application. If the manufacturer made all necessary corrections to the original application, the reviewer will provide notification of qualification (see Step 10, Condition 2).

III. Application Types

1. Single Product Applications

The DLC defines Single Product applications as any ONE of the following:

Condition 1: Applications with one unique model number.

Condition 2: Applications with one base model number that includes variations that do not affect the performance of the product, such as:

- Dimming capabilities if the drivers used to achieve different dimming capabilities are the same aside from the dimming capability. In this instance "the same" means a driver from the same manufacturer in the same product line. For example, Acme driver ABC-123-Fixed vs. Acme driver ABC-123-DIM
- Voltage variations if the drivers used to achieve different voltage ranges are the same aside from the voltage capability or if a stepdown transformer is used. In this instance "the same" means a driver from the same manufacturer in the same product line. For example, Acme driver ABC-123-120V vs. Acme driver ABC-123-480V. If a stepdown transformer

is used, the same driver must be used with the stepdown transformer as is present in the model without the stepdown transformer.

- Miscellaneous variations that do not affect the performance, i.e. housing color, cord length, emergency battery pack, may be represented by placeholders (XX or **) or brackets
- Mounting options that **do not** affect the thermal environment or the intended application of the product may also be included.

Condition 3: Applications with multiple unique model numbers where the only variation among models is the Correlated Color Temperature (CCT) achieved by different phosphor coatings of the same series of LED package/model/arrays.

The submitted model number must indicate all variations present during the LM-79 and ISTMT testing. The DLC reviewer will work with manufacturers to utilize placeholders in the model number for options that do not affect the performance, when applicable. If products fall under the Single Product definition, please follow the [Single Product Application Instructions](#).

Under condition 3, LM-79 and ISTMT testing should be conducted on the lowest CCT. In addition, an LM-79 report that contains [section 12 measurements](#) on the highest CCT must be provided.

2. Product Family Groups

Similar to other qualification programs, the DLC allows products that meet defined Product Family criteria to submit worst-case test data to qualify a group of products. The Product Family Grouping application process is intended to reduce testing costs by allowing manufacturers to determine the worst-case products within a group and demonstrate that the worst-case products meet the technical requirements. If the worst-case products meet the technical requirements, it can be assumed that all better-performing products within that group also meet them, and therefore additional testing on the better-performing products is not required. Product Family Groups must meet the conditions below to be eligible.

Please review the following before applying:

- [The DLC QPL categories and requirements](#)
- [The Independent Testing Lab Requirements](#)
- [“What is Worst Case” presentation \(pdf\)](#)
- [“Scaled Performance Methodology” presentation \(pdf\)](#)

Family Grouping Applications should only be used for family groups that meet the following definition:

Condition 1a: Meet the Product Family Definition

- a) A family must contain a single LED package, or standardized set of LED packages (see [Multiple LEDs policy](#))
- b) A family may contain multiple driver variations as well as different LED drive currents achieved by an adjustable driver.
 - a. If multiple driver variations are included within the family group, please refer to the [Testing Requirements](#) for specific instructions.
- c) The overall physical fixture housing and assembly must meet both of the following requirements:
 - a. Of identical material, construction, and shape, differing only in overall physical dimension for different models within the product grouping (see Subgroup definition). If the family group differs in overall dimension for different models within the group, each dimensional change will be grouped in a Subgroup.
 - b. In all other ways, thermally relatable to other fixtures in the family. That is, products can reliably be identified as to which are operating hotter or cooler.
- d) The products must demonstrate scalability or modularity using identical LED packages, module arrays, electronics, optics, heat sinking, and any other applicable features.
- e) A family may contain variations in fixture mounting systems if mounting systems do not change thermal management characteristics

Condition 2: Comply with Product Family Group Testing Concepts

The DLC's intention is to assure quality and lifetime performance of all family members through testing and documentation rigorous enough to offer confidence in the affected products. Accordingly, Product Family Groups must provide worst-case testing for light output (LM-79), efficacy (LM-79), and lumen maintenance (ISTMT/LM-80/TM-21). IES files for each optical variation and worst-case power factor and THD measurements are also required, though this information may be represented by other worst-case test reports.

Independent Test Reports Required for Each Family Group

Criterion	Test Required
Minimum Light Output	LM-79
Allowable CCT	LM-79
Minimum CRI	LM-79
Power Quality (THDi and Power Factor)	LM-79

Independent Test Reports Required for Each Family Group or Sub-group of a Family Group

Criterion	Test Required
Minimum Luminaire Efficacy	LM-79
Minimum L70 Lifetime	ISTMT LM-80 for single LED package as required for Lumen Maintenance projection through Option 1
Driver Reliability (applicable to products seeking DLC Premium Classification only)	Driver ISTMT

In House Test Reports Allowed: Test Reports Required for Each Family Group

Criterion	Test Required
Zonal Lumen Density (IES files)	LM-79
Driver Characteristics	Driver output electrical measurements

Condition 3: Provide Accurate Scaled Performance Information for All Models within the Group.

The manufacturer is responsible for designating the worst-case models in a group. The DLC requires that manufacturers provide scaled performance information for each product within a group to ensure the manufacturer has correctly designated the worst-case models. Acceptable sources for scaled performance information are:

- a) In-house laboratory test: In-house test reports from tests conducted in accordance with LM-79
- b) Calculated scaling: Mathematical characterization of luminaire performance based on manufacturer-developed scaling methodology. The manufacturer must provide a description of the scaling methodology and the technical basis for its validity. The DLC reserves the right to accept or reject the methodology for use in qualifying products.

If products fall under the Product Family definition, please follow the [Product Family Group Application Instructions](#).

Product Family Grouping Testing Guidance

The following testing guidance represents typical expectations of worst case performance variations within a family group. Manufacturers are responsible for demonstrating that products identified and tested as worst case performance do in fact represent the worst case, regardless of whether these typical expectations hold true for the submitted family group. Determination of worst case performance variations will be evaluated through the scaled performance information and the scaling methodology explanation.

Minimum Light Output

- The product that is expected to have the lowest overall light output (or lumens-per-foot, as applicable) must be tested according to LM-79. In general, this is expected to be the product with the fewest number of LEDs, lowest drive current, least efficient optic, and lowest CCT within the family group.
- Please note that if your family group application seeks qualification for your products in more than one Primary Use designation, testing must demonstrate compliance with the requirements for each Primary Use. This may result in the need to provide additional "worst-case light-output" LM-79s, or for a single test to be evaluated more than one time.
 - The only exception to the above will be for groups that cross light output bins in outdoor categories: while these groups must supply worst-case light output testing for the whole group, determination of the appropriate bin for family members will be made on the basis of the scaled performance table. Please note that testing must still demonstrate compliance with all efficacy levels, as noted below in the [efficacy testing section](#).

Allowable CCT

- Testing must be provided on a product that is at the representative highest CCT within the family group. For example, if the group includes products at 3000, 4000, and 5000K, at least one product at 5000K must be tested.
 - Please note, because DLC requirements have lower- and upper-bounds on CCT, color data will be needed at both the lowest and highest CCTs. However, since the worst-case efficacy and worst-case light output products are expected to be at the representative lowest CCT, it is expected that tests for those parameters will cover this need.
 - The LM-79 test report provided to satisfy this requirement must at least contain section 12 color measurements for a representative model at the highest CCT within the family group.

Minimum CRI

- Testing must be provided on the product that is expected to have lowest representative CRI within the family group. For example, the group includes 80 CRI and 90 CRI variations, testing must be conducted on at least one 80 CRI variant.
- The LM-79 test report provided must at least contain section 12 color measurements for the model that represents the lowest CRI option.
- Note that CRI variations are expected to affect light output, efficacy, and thermals. CRI variations should be considered when determining overall

worst case light output, efficacy, and thermal models within the family group.

Power Quality

- Electrical testing must be provided for the product that is expected to have the worst-case THD and PF in the group. In general, this is expected to be on the product with the driver with the least optimal loading condition. In situations where there is more than one driver in the group, in-house testing will be needed to demonstrate that the worst-case driver, loading condition, and input voltage have been selected for testing.
 - Power factor and THD graphs that compare the loading of the driver to the power quality performance must be provided for each driver of the family group, along with bench-top testing on the worst case loading for each driver used.
- In-house testing is allowed for power quality metrics.

Minimum Luminaire Efficacy

- Testing must be provided for each product expected to have the lowest lumens/Watt in each sub-group of the family. When determining worst-case efficacy, manufacturers must demonstrate that they are factoring in all variations that will affect this metric, including light output (LED counts and drive current), CCT, optical efficiencies, driver and applicable operating conditions, and thermal affects.
- Note that there are many factors that can influence efficacy. Manufacturers shall determine and justify the combination of factors that result in the worst case efficacy of each sub-group. DLC always reserves the right to ask for additional information to clarify or verify technical justification.
- If the family contains multiple drivers, driver spec sheets with efficiency curves must be provided, as well as bench-top testing demonstrating the driver efficiency at the applicable loading conditions and at the applicable input voltages.
- Please note that if your family grouping crosses requirement variables that have different efficacy requirements -- for example, across classifications or across light output bins for outdoor products -- testing must demonstrate that the products in the group meet all applicable requirements. This may result in the need to provide additional "worst-case efficacy" LM-79s.

Minimum L70 Determination

- The product with the worst-case lumen maintenance must demonstrate that it meets the DLC lumen maintenance requirements. Critically, this is normally expected to be on the product where the LED is operating at its highest temperature within the group. An ISTMT to support TM-21 projections must be conducted on the hottest LED in this (hottest) luminaire.

- This product is typically the model with the greatest number of LEDs, operated at the highest drive current, using the least efficient optics, and having the lowest CCT that results in the shortest life referenced as L70. If applying under Premium, the worst case thermal management model must also meet the L90 requirement.
- Worst case thermal measurements are required for each sub-group, as applicable.

Driver Reliability

- If the manufacturer is applying for the DLC Premium designation, the family group must demonstrate that the driver(s) used in the family meet the driver reliability requirements. This means an ISTMT of the driver(s) must be conducted on the worst-case product within the group or sub-group, as applicable, and must be supplied along with the appropriate driver spec sheets showing TMP location and reliability under allowable operating temperatures.
- The worst-case product within the group is expected to be the highest wattage model.
- The ISTMT report must be conducted at the applicable TMP location on the driver for the product where the driver operating temperature is worst-case.
- If multiple drivers exist within the family group, manufacturers are required to demonstrate which driver will result with the worst case with specific and relevant rationale. DLC reserves the right to ask for thermal test data on each unique driver if rationale is not specific enough to demonstrate worst case.

Zonal Lumen Density

- Provide measurements from tests conducted in accordance with LM-79 (and reported as required for an LM-79 test) for a representative model for each different optical distribution offered in the family group.
- In house testing is allowed.

Driver Characteristics

- For each unique driver used within a family group, manufacturers must provide electrical testing for each driver group to demonstrate which driver variation will result in the overall worst case metrics identified under the Independent Test Reports for Family Groups and Sub-groups.
 - In general, this testing should include the input voltage, current, and wattage, the output voltage, current, and wattage, and the THDi and PF, for each loading condition of each driver within the family group.
- In house testing is allowed.

3. Private Label Applications

The Private Labeling Policy is intended to allow manufacturers the option to re-list qualified products under alternate organizations without having to submit duplicate testing information. Recognizing the varied needs of different types of organizations, the DLC requires the following supporting documentation to be submitted. This information should be sufficient for the large majority of private labeling partnerships and multiple listing scenarios. Organizations submitting information for multiple brands should provide this information and the applicable fees with the original application. Organizations submitting information to private label an original equipment manufacturer's (OEM) products must provide this documentation after the OEM products have been qualified.

Required Documentation

- Download and complete the [Private Label Application form \(xlsx\)](#). The OEM's qualified products must be downloaded directly from the DLC QPL and the model numbers listed in the form. Instructions for downloading products from the DLC QPL are available in the new How to Download the DLC QPL guidance.
 - Note: Private labels must include at least one OEM Parent model to be eligible. Please ensure the OEM products downloaded from the DLC QPL include at least one Parent model.
- Download and completed the [Private Label Agreement form \(docx\)](#). This is a statement briefly explaining the relationship between the two (or more) organizations or brands and certifying that the products to be listed are exactly the same in design and performance. This private label statement must be signed by representatives of all organizations involved. If one organization is listing products under different brand names, the signature of a representative of the parent organization is sufficient.
 - Note: An organization that is a signatory to the private label statement may choose to withdraw its consent at any time by submitting to the DLC a written request that the private label listing be terminated. Any such request must be signed by an authorized representative of the organization. Upon receipt of such request, the DLC will delist the private labeled model numbers from the QPL.
- A list of all model numbers submitted for qualification, showing the association of a base brand model number to the cross-listed model number(s).
- A product specification sheet for the new model numbers being submitted.
 - Manufacturer must submit the specification sheet they are using in the marketplace. Spec sheets created for DLC submission only are not acceptable.

- Product specification sheet must clearly detail dimming capabilities if products capable of dimming are submitted.
- Signed Self-certification Statement (PDF) signed by a representative of the Private Labeling organization.

Submitting a Private Label Application

To expedite payment, please have the manufacturer responsible for the application fees submit the required documentation.

VIII. Application Fees

DLC requires manufacturers to submit an application fee to cover the costs of the review of their product applications. The specific amount of the fee is dependent upon the type of application submitted, and (in most cases) upon the details of the particular product group in the application submission. This page is intended to clarify the details of how those application fees are determined, to allow applicants to better estimate what their submission fees will be.

I. Single Product Applications

Single Product Applications are intended for application submissions where a manufacturer is seeking to qualify only a single product, or a small group of products with only limited variations. Under current DLC policies, only variations that do not affect performance – such as external housing color, CCT variations, voltage variations, or dimming capabilities are allowed within Single Product Applications.

The application fee for single product applications is \$500. Please note that Single Product Applications must have all relevant testing on the product specifically submitted in this application. Cross-applying of data from similar products is only allowed under family grouping applications.

Applications with special considerations, such as those submitting products for qualification in the DLC Premium classification, or in a Specialty Use designation, will include additional application fees noted in the relevant sections below.

II. Family Grouping Applications

Family Grouping Applications are intended for application submissions where a manufacturer is seeking to qualify a group of products with many variations in design and performance. Please refer to the Family Grouping page for details on what variations are allowable, and which are not.

Application fees for family groups are dependent upon the size and complexity of the group. In general, the fees schedule is as follows:

- \$500 per independent test report (ITR) evaluation required under the product group application procedure. Per the family grouping policy, the following report types are considered as ITRs:
 - LM-79s
 - LED ISTMTs
 - Driver ISTMTs (for Premium Classification)
- \$25 per additional product family member in the group. This is calculated as: Total Products in the Group - Number of ITR = Additional Family Members.
- \$400 for a family group submitted for qualification in the Specialty Use designation.
- For additional products necessary to be listed ONLY to identify the differing dimming performance (see [Dimming Policy](#)), manufacturers will either be required to pay the \$25 per product fee, or the fee based on the chart below, whichever amounts to the lower total application fee. Note that the size of the family group below is based on the total number of additional products necessary to be listed ONLY to identify the differing dimming performance.

Number of Products in Family ONLY to Identify Differing Dimming Performance	Fee
1-10	\$260.00
11-100	\$365.00
101-500	\$445.00
501-1000	\$520.00
1001-2500	\$625.00
2501+	\$675.00

III. Private Label Applications

The Private Label Policy fees are based on those of the original application. The private labeling application fees are as follows:

- \$50 for each \$500 charged through the original application
- \$25 per additional family member charged through the original application.
- For additional products necessary to be private labeled ONLY to identify the differing dimming performance (see [Dimming Policy](#)), manufacturers will either be required to pay the \$25 per product fee, or the fee based on the chart below, whichever amounts to the lower total application fee. Note that the size of the family group below is based on the total number of additional products necessary to be listed ONLY to identify the differing dimming performance.

Number of Products in Family ONLY to Identify Differing Dimming Performance	Fee
1-10	\$260.00
11-100	\$365.00
101-500	\$445.00
501-1000	\$520.00
1001-2500	\$625.00
2501+	\$675.00

IV. DLC Premium Applications

Single Product or Family Grouping Applications containing products submitted under the Premium classification will include an application fee of \$500 for the evaluation of the Driver ISTMT.

V. Specialty Use Designation

Single Product or Family Grouping Applications containing products submitted under the Specialty Use designation will include an application fee of \$400 for the evaluation ensuring the products submitted meet the purpose of the DLC and the Specialty Use designation.

IX. Application Instructions

I. General Application Instructions

1. Manufacturer Login

If you have not already done so, create a [Manufacturer Login](#). The DLC highly recommends that the application be filled out by a person with sufficient technical knowledge of lighting products and testing, such as a lighting engineer. Experience has shown that applications submitted by sales, marketing, or administrative staff often lack important details which delay overall processing.

2. Product Application Form

Download and complete the [Product Application Form \(xlsx\)](#). See [Completing the Product Application Form](#) instructions below for more information.

3. LED Lighting Facts

If applicable, submit the product’s LM-79 information to LED Lighting Facts. For more information about submitting products to LED Lighting Facts as part of the DLC application, please see [LED Lighting Facts Information](#).

4. Create Application

Start a new application by clicking “Create New Application” under the Take Action menu on the [Manufacturer Home page](#).

5. Application Information

Fill in application information, including:

- Contact name
- Application name (a label that allows you to check the application’s status easily from your manufacturer account)
- Contact email address
- Contact phone number

6. Upload Required Documentation

a) Completed Product Application Form

The [Product Application Form \(xlsx\)](#) includes a sample of a completed form, which can be found on the second tab of the document.

b) Manufacturer Product Specification Sheet

The manufacturer product specification sheet is the marketing document the manufacturer supplies to customers interested in purchasing the product. Product specification sheets often include images of the product, intended application(s), ordering codes and available variations, and rated performance. Product specification sheets may also be referred to as cut sheets, sell sheets, product brochures, or catalogs. Product specification sheet must clearly detail dimming capabilities if the products are capable of dimming.

c) LED Package Specification Sheet

The LED package specification sheet is the marketing document the LED package/module/array manufacturer supplies to customers interested in purchasing the product. The LED package specification sheet often includes images of the product, ordering codes, schematic diagrams, and rated performance. The LED package specification sheet can be obtained from the LED package/module/array manufacturer.

d) LM-79 Report(s) Containing Sections 9, 10, and 12

Sections 9, 10, and 12 may be combined in the same PDF report or provided separately. Unique, relevant part numbers matching the submitted model number in the Application Form must be listed on each report. Supplemental power quality test report or LM-79 with worst case power factor and total harmonic distortion (THD) measurements, if not included in primary LM-79.

e) IES Photometric File

The IES file has the file extension “.ies”. The IES file must include a unique, relevant part number, test lab name, and test date.

f) Warranty Document

The warranty document is the legal warranty document explaining all warranty terms and conditions associated with the submitted product(s). See warranty [FAQ](#) for details.

g) Signed Self-Certification Statement

The self-certification statement must be signed, dated, and provided with each application.

h) Product Installation Instructions (for retrofit kits and replacement lamps only)

Product installation instructions are required only for retrofit kits and linear replacement lamp applications (categories 21 through 32). Installation instructions must detail all necessary steps for installing the retrofit kit or replacement lamp. They should be the same instructions provided to the end-user.

i) Proof of Safety Certification

Proof of safety certification is required for all product types. The safety certification must include a unique, relevant part number and must demonstrate that the part number listed in the report has received safety certification. The safety testing report is not sufficient to indicate that the product has received safety certification.

j) Lumen Maintenance Information:

Lumen maintenance information is required for each worst case thermal family member: select one of the two options and submit all of the corresponding required documentation. For more information regarding lumen maintenance, please see the [Technical Requirements Table](#).

(1) Option 1: Component Performance

- IES LM-80 test report
 - Note: Manufacturers are expected to provide the most recent LM-80 report available for the LED package/module/array used in the product
 - Schematic/photograph from LED package/module/array manufacturer that shows the specified temperature measurement point (TMP)

See [Understanding Testing Principles: Lumen Maintenance](#) and [Completing the Single Product Application Form](#) for details.

- In-situ temperature measurement test (ISTMT) report

- Photograph of temperature measurement (i.e., attached thermocouple) showing that the temperature is measured at the TMP specified by the LED package/module/array manufacturer

See [Understanding Testing Principles: ISTMT](#) and [Completing the Single Product Application Form](#) for details.

- Saved copy of the completed ENERGY STAR TM-21 calculator worksheet (Microsoft Excel file format), available for download at www.energystar.gov/tm21calculator.

(2) Option 2: Luminaire Performance

- LM-84-14 test report
- TM-28 projection calculations
- LM-80-08 test report for the LED package/module/array if using Combined Extrapolation approach per TM-28
 - Note: Manufacturers are expected to provide the most recent LM-80 report available for the LED package/module/array used in the product
- ENERGY STAR TM-21 worksheet (Excel file format) if using Combined Extrapolation approach per TM-28

7. Submit the application by clicking "Submit" under the application Take Action menu.

Notes about Application Materials:

*All supporting documentation must include the specific, relevant model or part number.

Documents and files related to the luminaire (e.g., LM-79-08, ISTMT) must include the unique model number of the luminaire that is named on the application. Documentation related to the LED package/module/array (e.g., the LM-80 report) must include the part number of the specific LED package/module/array that is named in the application. Please see the FAQs page for further clarification regarding these individual test reports. Please

communicate with any independent laboratory the exact luminaire model number that it should include in its test reports.

*If the submitting organization's name is not represented within the test reports provided with the application, please submit the [Test Report Authorization form \(docx\)](#).

***Our file naming conventions:**

When uploading documentation to the application, please include the report type in the file name (i.e., “filenameABC_LM-79” or “filenameABC_product_spec_sheet.”). Naming the files appropriately in the application will speed up review time. The system will allow you to replace and delete files as necessary before submitting.

***Acceptable sources for self-reported/rated performance data:**

1. In-house laboratory test – In-house test reports from tests conducted in accordance with IESNA LM-79
2. Calculated Scaling – Provide mathematical characterization of luminaire performance based on manufacturer-developed scaling methodology. The manufacturer must provide a description of the scaling methodology employed and the technical basis for its validity. The DLC reserves the right to accept or reject the methodology for use in qualifying products.

Application Fees:

DLC requires a processing fee to accompany an application submittal. Application fees for Family Group applications are primarily determined by the number of test reports needed to appropriately bracket the group and the number of additional family members. For more information on the details of the application fee structure, please refer to the [Application Fees](#) page.

II. Single Product Application Instructions

The following information describes the process of completing the Product Application Form for products that meet the [Single Product definition](#).

Completing the Product Application Form

1. Tab 1: “Application Form”

a) Section 1: Company and Application Contact Information

- *Company:* Enter the name of your organization. Please note that this organization name will appear on the QPL.
- *Brand:* Enter the name of the brand your product is sold under. Please note that this brand name will appear on the QPL.

- *Contact Name, Phone, Email*: Enter the name of and contact information for the person within your organization that questions regarding this application submission should be directed to.
- *Website*: Please enter the website for your company. If the product is listed on a different webpage, please enter that as well.

b) **Section 2: Application Type**

- Please select the application type that corresponds with the application you are submitting. For single product applications, this will be "Single Product Application".

c) **Section 3: Primary Use Information**

- Please select the appropriate information for the application you are making in each cell. The categories correspond with structure of the Technical Requirements Table. If you are unsure which category your product falls into, please see the guidelines on [product eligibility](#).
- If you are submitting the product as a "Specialty Use" product within a general application, please provide a short description of the types of applications the product is intended to be used for. Supplemental images provided with the application are often helpful to the DLC review staff in evaluating applications efficiently.
- *DLC Category*: Select the primary use you are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.
- *General Application*: Select the General Application you are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.
- *Primary Use*: Select the Primary Use designation are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.
- *Specialty Use Description*: If you are submitting the product as a "Specialty Use" product within a general application, please provide a short description of the types of applications the product is intended to be used for. Supplemental images provided with the application are often helpful to the DLC review staff in evaluating applications efficiently.

- *DLC Classification*: Please indicate the classification you are submitting each product for consideration under in the Scaled Performance Table tab. This should be "Standard" or "Premium".

d) **Section 4: Product Information**

- Please provide the requested information regarding the design and testing of your product.
- *Rated Voltage*: Enter the voltage range you market your product to operate on. E.g. 120-277V.
- *Driver Model Number*: Enter the model number for the driver you are using in your product. Please note that spec sheets must be included for DLC Premium applications, but are encouraged to be provided in all cases.
- *LED Package/Module/Array Part Number*: Enter the part number for the LED package/module/array you are using in your product. Please keep in mind that the DLC follows the [ENERGY STAR guidance](#) on LM-80 testing and evaluation.
- *LED Drive Current*: Enter the current at which you are driving your LEDs. If you are using a Chip-on-Board package/array in your product, please include both the drive current for the array and the calculated current-per-die.
- *Accessories*: If any additional accessories are employed in the testing of your product, please note those details in this field. Note that retrofit kits must be tested in a reference housing; the model number for that housing must be listed in this field.
- *Description*: Please enter a detailed description of your product or product group.
- *Controls*: Please indicate whether customers can order your product with integral sensors for occupancy sensing and photo control. DLC reviewers will verify these claims against information found in your spec sheet. This information is required for products seeking qualification in the DLC Premium classification, and optional for those in seeking qualification in the DLC Standard classification.
- *Dimmability*: Please indicate whether or not this application includes products that are dimmable. Be sure to indicate the dimming performance of each product on the Scaled Performance Table tab.

Please note that any section grayed-out, such as the section on housing variations, does not need to be completed for single-product applications. These sections are only applicable to Family Grouping applications.

- e) **Section 5: Product Identifier Information**
 - *Ordering Code/Model Number Information:* Enter a description of the character codes that make up your model number/ordering code. This description should be detailed enough for your DLC reviewer to understand what each character in your model number represents, and should be consistent with the information supplied in your spec sheet.
2. **Tab 2: "Scaled Performance Table"**
- a) **Section 1: Scaling Methodology**
 - Please explain the methodology used in developing the rated performance information for the products in this submission. This explanation should be sufficiently detailed to cover all variations within the product group, and for the DLC reviewer to be able to follow the engineering logic and development of any value in the table. Manufacturers may provide additional information on their scaling methodology in separate documents as necessary to communicate these details.
 - b) **Section 2: Performance Table**
 - Please provide the information requested in each column for every product in the group you are submitting for application. Please include only those products you are submitting for application.
 - *Primary/Specialty Use:* Please enter the Primary Use designation you are submitting these products for qualification under, consistent with the DLC Technical Requirements table. If you are submitting these products under the "Specialty" designation, please include "Specialty:" along with the name of the end-use application these products will be used in in the market place. For example, stadium lighting would be "Specialty: Stadium Lighting."
 - *Classification:* Please enter the DLC classification you are seeking qualification for each product in: Premium or Standard. The requirements for each classification can be found on the Technical Requirements page.

- *Model Number*: Please enter the complete model numbers for the products you are seeking qualification for in this column. Please note that model numbers must be complete model numbers, including all details to specify the performance of the product. Wild-card characters may only be used to represent variations that do not affect performance, such as exterior housing color.
- *Scaled Initial Light Output*: Please enter the expected light output for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Luminaire Efficacy*: Please enter the expected efficacy for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Input Power*: Please enter the expected power (wattage) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Total Harmonic Distortion*: Please enter the expected THD for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Power Factor*: Please enter the expected power factor for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled CCT*: Please enter the expected correlated color temperature (CCT) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled CRI*: Please enter the expected color rendering index (CRI) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Housing Variation*: This field is not needed for single product applications. If your product group includes housing variations, please see the Family Grouping rules.
- *Vertical NEMA Beam Spread*: If you are seeking qualification for your product in one of the flood or spot Primary Use designations, please enter vertical NEMA Beam classification.

- *Horizontal NEMA Beam Spread:* If you are seeking qualification for your product in one of the flood or spot Primary Use designations, please enter horizontal NEMA Beam classification.
- *Sensors:* Please indicate whether your products can be ordered with integral occupancy sensors or photocontrols. This field must be filled out for products seeking qualification in the DLC Premium classification, and is optional for products in the DLC Standard classification.
- *Dimming Capability:* Please indicate whether your product is dimmable.
- *Dimming Type:* If your product is dimmable, please indicate whether it dims in a continuous or stepped manner.
- *Minimum Dimming Level:* If your product dims continuously, please indicate whether it can dim to $\leq 10\%$ of its full input power. Please note this question is about the power consumed by the product in the dimmed state, not the light output.
- *Length:* If you are seeking qualification for your product in one of the screw-base replacements for HID lamps, linear ambient, or display case luminaires Primary Use designation, please enter the length of the product in inches.
- *Rf:* If you wish to provide information about the product's Fidelity Index (Rf) according to TM-30, please indicate the value here. This metric is currently optional, and not required for listing. To list this metric for products on the QPL, you must use the official Excel version of the TM-30 calculation tool offered with the IES standard.
- *Rg:* If you wish to provide information about the product's Gamut Index (Rg) according to TM-30, please indicate the value here. This metric is currently optional, and not required for listing. To list this metric for products on the QPL, you must use the official Excel version of the TM-30 calculation tool offered with the IES standard.

III. Family Grouping Application Instructions

The following information describes the process of completing the manufacturer electronic application form for products that meet the [Product Family definition](#). The application form is split into several sections to simplify both application and review. Please refer to the instructions below for any questions regarding how to appropriately use this form for Family Grouping submissions:

Completing the Product Application Form

1. **Tab 1: “Application Form”**
 - a) **Section 1: Company and Application Contact Information**
 - Please fill out the requested information, as detailed below.
 - *Company*: Enter the name of your organization. Please note that this organization name will appear on the QPL.
 - *Brand*: Enter the name of the brand your product is sold under. Please note that this brand name will appear on the QPL.
 - *Contact Name, Phone, Email*: Enter the name of and contact information for the person within your organization that questions regarding this application submission should be directed to.
 - *Website*: Please enter the website for your company. If the product is listed on a different webpage, please enter that as well.
 - b) **Section 2: Application Type**
 - Please select the application type that corresponds with the application you are submitting. For Family Grouping applications, this will be "Family Grouping Application".
 - c) **Section 3: Primary Use Information**
 - Please select the appropriate information for the application you are making in each cell. The categories correspond with structure of the [Technical Requirements Table v.3.0](#). If you are unsure which primary use your product falls into, please see the guidelines on [product eligibility](#).
 - If you are submitting the product as a "Specialty Use" product within a general application, please provide a short description of the types of applications the product is intended to be used for. Supplemental images provided with the application are often helpful to the DLC review staff in evaluating applications efficiently.
 - *DLC Category*: Select the Category you are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.
 - *General Application*: Select the General Application you are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.

- *Primary Use*: Select the Primary Use designation are submitting these products for consideration under. Please refer to the Technical Requirements Table if you are unsure.
- *Specialty Use Description*: If you are submitting the product as a "Specialty Use" product within a general application, please provide a short description of the types of applications the product is intended to be used for. Supplemental images provided with the application are often helpful to the DLC review staff in evaluating applications efficiently.
- *DLC Classification*: Please indicate the classification you are submitting each product for consideration under in the Scaled Performance Table tab. This should be "Standard" or "Premium".

d) **Section 4: Product Information**

- Please provide the requested information regarding the design and testing of your product.
- *Rated Voltage*: Enter the voltage range you market your product to operate on. E.g. 120-277V.
- *Driver Model Number*: Enter the model number for the driver you are using in your product. Please note that spec sheets must be included for DLC Premium applications, but are encouraged to be provided in all cases.
- *LED Package/Module/Array Part Number*: Enter the part number for the LED package/module/array you are using in your product. Please keep in mind that the DLC follows the [ENERGY STAR guidance](#) on LM-80 testing and evaluation.
- *LED Drive Current*: Enter the current at which you are driving your LEDs. If you are using a Chip-on-Board package/array in your product, please include both the drive current for the array and the calculated current-per-die.
- *Accessories*: If any additional accessories are employed in the testing of your product, please note those details in this field. Note that retrofit kits must be tested in a reference housing; the model number for that housing must be listed in this field.
- *Description*: Please enter a detailed description of your product or product group.
- *Controls*: Please indicate whether customers can order your product with integral sensors for occupancy sensing and

photo control. DLC reviewers will verify these claims against information found in your spec sheet. This information is required for products seeking qualification in the DLC Premium classification, and optional for those in seeking qualification in the DLC Standard classification.

- **Housing Variations:** Please indicate whether your family group includes housing variations. Please note that the DLC Family Grouping policy currently allows for variations in size or dimension, but not shape. If your group does include housing variations, please include a brief description of each variation in the cells below. Important details include the size of each housing, and an indication of which model this housing is applicable to. The "A", "B", "C", etc. designations are indexing values that the DLC reviewer will use when evaluating your group and scaling methodology on the next tab.
- **Dimmability:** Please indicate whether or not this application includes products that are dimmable. Be sure to indicate the dimming performance of each product on the Scaled Performance Table tab.

e) **Section 5: Product Identifier Information**

- **Ordering Code/Model Number Information:** Enter a description of the character codes that make up your model number/ordering code. This description should be detailed enough for your DLC reviewer to understand what each character in your model number represents, and should be consistent with the information supplied in your spec sheet.

2. **Tab 2: "Scaled Performance Table"**

a) **Section 1: Scaling Methodology**

- Please explain the methodology used in developing the rated performance information for the products in this submission. This explanation should be sufficiently detailed to cover all variations within the product group, and for the DLC reviewer to be able to follow the engineering logic and development of any value in the table. Manufacturers may provide additional information on their scaling methodology in separate documents as necessary to communicate these details.

b) **Section 2: Performance Table**

- Please provide the information requested in each column for every product in the group you are submitting for application. Please include only those products you are submitting for application.
- *Primary/Specialty Use*: Please enter the Primary Use designation you are submitting these products for qualification under, consistent with the DLC Technical Requirements table. If you are submitting these products under the "Specialty" designation, please include "Specialty:" along with the name of the end-use application these products will be used in in the market place. For example, stadium lighting would be "Specialty: Stadium Lighting."
- *Classification*: Please enter the DLC classification you are seeking qualification for each product in: Premium or Standard. The requirements for each classification can be found on the Technical Requirements page.
- *Model Number*: Please enter the complete model numbers for the products you are seeking qualification for in this column. Please note that model numbers must be complete model numbers, including all details to specify the performance of the product. Wild-card characters may only be used to represent variations that do not affect performance, such as exterior housing color.
- *Scaled Initial Light Output*: Please enter the expected light output for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Luminaire Efficacy*: Please enter the expected efficacy for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Input Power*: Please enter the expected power (wattage) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled Total Harmonic Distortion*: Please enter the expected THD for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.

- *Scaled Power Factor*: Please enter the expected power factor for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled CCT*: Please enter the expected correlated color temperature (CCT) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Scaled CRI*: Please enter the expected color rendering index (CRI) for the products in your group in this column. Please be sure that these values are traceable to the scaling methodology you describe.
- *Housing Variation*: This field is not needed for single product applications. If your product group includes housing variations, please see the Family Grouping rules.
- *Vertical NEMA Beam Spread*: If you are seeking qualification for your product in one of the flood or spot Primary Use designations, please enter vertical NEMA Beam classification.
- *Horizontal NEMA Beam Spread*: If you are seeking qualification for your product in one of the flood or spot Primary Use designations, please enter horizontal NEMA Beam classification.
- *Sensors*: Please indicate whether your products can be ordered with integral occupancy sensors or photocontrols. This field must be filled out for products seeking qualification in the DLC Premium classification, and is optional for products in the DLC Standard classification.
- *Dimming Capability*: Please indicate whether your product is dimmable.
- *Dimming Type*: If your product is dimmable, please indicate whether it dims in a continuous or stepped manner.
- *Minimum Dimming Level*: If your product dims continuously, please indicate whether it can dim to $\leq 10\%$ of its full input power. Please note this question is about the power consumed by the product in the dimmed state, not the light output.
- *Length*: If you are seeking qualification for your product in one of the screw-base replacements for HID lamps, linear ambient, or display case luminaires Primary Use designation, please enter the length of the product in inches.

- *Rf*: If you wish to provide information about the product's Fidelity Index (Rf) according to TM-30, please indicate the value here. This metric is currently optional, and not required for listing. To list this metric for products on the QPL, you must use the official Excel version of the TM-30 calculation tool offered with the IES standard.
- *Rg*: If you wish to provide information about the product's Gamut Index (Rg) according to TM-30, please indicate the value here. This metric is currently optional, and not required for listing. To list this metric for products on the QPL, you must use the official Excel version of the TM-30 calculation tool offered with the IES standard.

IV. Dimming Policy

DLC members have expressed a need to be able to identify products that are able to dim with certain characteristics. The DLC collects and reports specific dimming information to accommodate this need.

Dimming Information to be Collected and Reported

As of July 2014, DLC began collecting and reporting the following information for all new products:

Please report the following information when completing the Product Application Form:

- *Dimming Capability*: Please indicate whether your product is dimmable.
- *Dimming Type*: If your product is dimmable, please indicate whether it dims in a continuous or stepped manner.
- *Minimum Dimming Level*: If your product dims continuously, please indicate whether it can dim to $\leq 10\%$ of its full input power. Please note this question is about the power consumed by the product in the dimmed state, not the light output.

Due to the lack of an industry standard testing methodology to verify dimming capability and performance under dimmed conditions, DLC will not require testing be submitted to verify dimming performance at this time. The DLC will monitor industry progress toward standard testing methodology and determine if performance information should be reported and/or performance requirements be instituted in the future.

Manufacturers of products previously qualified may update the listings of these products with this information as outlined in this [guidance document](#). Currently qualified products will not be removed from the QPL if dimming information is not updated. Instead, beginning July 2014, qualified product's dimming capability will be indicated as "Not Yet Verified" until dimming information is provided.

Supporting Documentation

For all new products submitted for qualification, manufacturers will be required to self-report a product's dimming capability, dimming type, and whether the product is capable of dimming continuously to 10% or below its full input power. Manufacturers must identify the unique model number(s) for each product variation submitted in an application with different combinations of reported dimming information. Products with different performance with respect to these three dimming characteristics will not be permitted to be represented by the same model number listing on the QPL.

The DLC will evaluate a manufacturer's claims of dimming capability by ensuring that the dimming claims are clearly published in the product specification sheet and correspond with the unique model numbers submitted. DLC reviewers may check web listings and other marketing materials, and reserve the right to request additional information to demonstrate dimming capability if product specification sheets are not sufficient.

Application Fees

Update Applications

Due to the need for DLC staff to review and process product updates, there will be a cost for relisting products with appropriate dimming information.

For applications to update products already on the QPL, there will be an update application fee per family group submitted, based on the number of products within each family group. The table below details the per-family application fee for various numbers of products within each group. Note that the size of the family group below is based on the total number of products, including any additional models needing to be listed to differentiate dimming capabilities.

Total Number of Products in the Updated Family Group	Fee to Update Family
1-10	\$260.00
11-100	\$365.00
101-500	\$445.00
501-1000	\$520.00
1001-2500	\$625.00
2501+	\$675.00

Manufacturers may submit multiple families within one update application. For more information regarding the update application process, please see the accompanying [guidance document](#).

New Applications

For applications of new products going forward, additional listings necessary to distinguish between product variations with differing performance on the dimming characteristics above will need to be identified. For single product submissions, dimming variations will be allowed, along with CCT variations, with no additional application fees.

For family grouping applications, the regular additional family member fee of \$25 per product will continue to apply to the number of listings necessary prior to the implementation of the dimming policy, consistent with the existing fee structure. For additional products necessary to be listed ONLY to identify the differing dimming performance, manufacturers will either be required to pay the \$25 per product fee, or the fee based on the chart above, whichever amounts to the lower total application fee. Examples can be found in this [guidance document](#).

V. LED Lighting Facts Information

As of July 5, 2012, the LM-79 portion of the DLC application review for certain categories will be conducted through the LED Lighting Facts program. The product categories requiring LED Lighting Facts submission are detailed below. Only products for which the DLC requires LM-79 data (e.g., the worst-case light output member of a Product Family) are required to be listed with LED Lighting Facts. Please refer to the instructions below on how to submit products to the LED Lighting Facts program.

The DLC and LED Lighting Facts have similar turnaround times for reviewing applications and product submissions. DLC recommends that the application for LED Lighting Facts listing be submitted at the same time as the DLC application.

1. Sign the Pledge

To become a partner with the LED Lighting Facts program, manufacturers must sign the [LED Lighting Facts pledge](#). Signing the pledge will allow the

manufacturer to create an account and begin submitting products to the LED Lighting Facts program.

2. Submitting Products

Once logged into your account, create a submission for each unique model under the ‘Manage Your Products’ page. The model number submitted to the DLC must match the model number submitted to LED Lighting Facts. Enter the five main performance claims (lumens, efficacy, watts, CRI, CCT) as well as all optional LM-79 metrics as they appear in the test report. The only LED Lighting Facts metrics manufacturers are not required to claim for DLC are zonal lumen density (all four zones), dimming information, LED lumen maintenance, warranty, and the URL for additional product data. Upload the corresponding LM-79 report from an [Approved Laboratory](#) and product specification sheet for the submitted model. Once the product submission is approved by LED Lighting Facts, the DLC will use LED Lighting Facts tools to evaluate the LM-79 data against the appropriate DLC product Primary Use requirements. For more details on submitting products to the LED Lighting Facts program, please refer its [Library](#).

When submitting a product to LED Lighting Facts, it is important that you select the appropriate “Product Type” and “Product” that corresponds with a DLC Primary Use. Additionally, in the LED Lighting Facts submission form, you must select “Yes” for the checkbox “Are you submitting this product for DLC qualification?” This question will only appear for product categories that are eligible for DLC qualification. Refer to the table below when submitting to LED Lighting Facts. For DLC categories with multiple LED Lighting Facts “Product” designations, select the “Product” designation that best represents your product.

DLC Primary Use	LED Lighting Facts “Product Type”	LED Lighting Facts “Product”
Outdoor		
Outdoor Pole/Arm-Mounted Area and Roadway Luminaires	Luminaire	Area/Roadway
Outdoor Pole/Arm-Mounted Decorative Luminaires	Luminaire	Area/Roadway
	Luminaire	Decorative

Outdoor Wall-Mounted Area Luminaires	Luminaire	Area/Roadway
Bollards	Luminaire	Bollard
Parking Garage Luminaires	Luminaire	Parking Garage
Fuel Pump Canopy Luminaires	Luminaire	Canopy
Landscape/Accent Flood and Spot Luminaires	Luminaire	Directional
Architectural Flood and Spot Luminaires	Luminaire	Directional
Stairwell and Passageway Luminaires	Luminaire	Other
Specialty	Luminaire	Select the “Product” that best represents your product’s Specialty Designation
Indoor		
Wall-Wash Luminaires	Luminaire	Wall-wash
Track or Mono-Point Directional Luminaires	Luminaire	Directional
Vertical Refrigerated Case Luminaires	<i>see special cases below</i>	
Horizontal Refrigerated Case Luminaires	<i>see special cases below</i>	
Display Case Luminaires	<i>see special cases below</i>	
2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces	Luminaire	Troffer/Grid Ceiling
	Luminaire	Linear
1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces	Luminaire	Troffer/Grid Ceiling
	Luminaire	Linear

2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces	Luminaire	Troffer/Grid Ceiling
	Luminaire	Linear
Direct Linear Ambient Luminaires	Luminaire	Linear
	Luminaire	Industrial
	Luminaire	Other
Linear Ambient Luminaires w/ Indirect Component	Luminaire	Linear
	Luminaire	Industrial
	Luminaire	Other
High-Bay Luminaires for Commercial and Industrial Buildings	Luminaire	Industrial
	Luminaire	Linear
	Luminaire	Other
Low-Bay Luminaires for Commercial and Industrial Building	Luminaire	Industrial
	Luminaire	Linear
	Luminaire	Other
High-Bay Aisle Luminaires	Luminaire	Industrial
	Luminaire	Linear
	Luminaire	Other
Specialty	Luminaire	Select the "Product" that best represents your product's Specialty Designation
Outdoor Retrofit Kit		
<i>see special cases below</i>		

Indoor Retrofit Kit		
<i>see special cases below</i>		
Linear Replacement Lamp		
Replacement Lamps (“plug and play”) (UL Type A)	Lamp	Linear
Internal Driver/Line Voltage Lamp-style Retrofit Kits (UL Type B)	Lamp	Linear
External Driver Lamp-style Retrofit Kits (UL Type C)	Lamp	Linear
Dual Mode Internal Driver (UL Type A and Type B)	Lamp	Linear
Screw-Base Replacements for HID Lamps		
<i>see special cases below</i>		

a) LED Lighting Facts Optional Metrics

To ensure maximum usefulness for its members, the DLC requires manufacturers to include in their product listing with the LED Lighting Facts program all data in the submitted LM-79 report. This data will allow a product to be eligible for more programs, which may require that information. The DLC notes that some metrics that LED Lighting Facts lists as “optional” must be submitted to the LED Lighting Facts listing for purposes of evaluating DLC qualification, such as input voltage, power type, and spacing criteria when applicable.

b) Special Cases Not Required to Submit to LED Lighting Facts

Some DLC testing policies for certain product categories do not align with LED Lighting Facts requirements. For DLC Retrofit Kit, Two-Foot Linear Replacement Lamp, Four-Foot Linear Replacement Lamp, Vertical Refrigerated Case Luminaire, Horizontal Refrigerated Case Luminaire, Display Case Luminaire, and Screw-base Replacements for HID Lamp applications, please refer to the following:

(1) Retrofit Kits and Screw-Base Replacements for HID Lamps:

The DLC requires retrofit kits and screw-base replacements for HID lamps to be tested to LM-79 in specific reference fixtures listed in the [Retrofit Kit policy](#) and the [Screw-Base Replacements for HID Lamps policy](#). LED Lighting Facts lists the performance of the retrofit kit or lamp alone, without a reference fixture. DLC Retrofit Kit and Screw-base Replacements for HID Lamp applications are not required to submit to LED Lighting Facts. Upload the LM-79 photometric file in the additional files section of the DLC file upload form.

(2) Linear Replacement Lamps:

The DLC requires linear replacement lamps to be tested as bare lamps and when installed in a reference troffer, according to the [Linear Replacement Lamps](#) policy. LED Lighting Facts lists the performance of the bare lamp only. The bare lamp LM-79 photometric file must be submitted to LED Lighting Facts, but the LM-79s for the lamps installed in the parabolic and prismatic reference troffers should not be submitted to LED Lighting Facts. These LM-79 reports should be uploaded in the additional files section of the DLC file upload form.

(3) Vertical/Horizontal Refrigerated Case Luminaires and Case Luminaires: Refrigerated and Case lighting is different from other DLC categories in that the “luminaire” is made up of several individual units connected to one power supply. DLC lists each of these individual units in the QPL, but those units often exhibit different performance as individuals and when installed in the system. DLC recommends that vertical and horizontal refrigerated case lighting and case lighting be tested as described in FAQ #19 to obtain a combination of unit and system level data. These products cannot be listed with LED Lighting Facts when tested as described in FAQ #19. Vertical Refrigerated Case Luminaires, Horizontal Refrigerated Case Luminaires, and Display Case Luminaires are not required to submit applications to LED Lighting Facts.

X. Frequently Asked Questions

The FAQs address common questions and note technical interpretations followed by the DLC program. FAQs are updated regularly to reflect the most up-to-date policies used to review an application. Manufacturers should read the FAQ page prior to each submission to ensure they are familiar with current policies. To access the FAQ page, click [here](#).

XI. DLC Qualified Products List

When a product or group of products passes DLC qualification, the product(s) are added to the DLC Qualified Products List (QPL). The QPL provides a centralized list of high-performing, verified, and tested LED products. The QPL helps DLC members determine which products may be eligible for incentive or rebate programs. While its members pledge to use the DLC QPL to make informed decisions about eligibility for rebates and incentives, the DLC does not have control over the rebate and incentive distributions; these decisions are at the sole discretion of the members. A product listed on the DLC QPL will not automatically receive rebates or incentives.

The QPL lists pertinent information, including manufacturer name, brand name, model number, family model numbers, measured values, warranty, date qualified, and rated values. The measured values are taken directly from submitted test reports, while the rated values are taken from the manufacturer's product specification sheet.

The QPL is a database that is automatically updated each time a product is entered. Users of the QPL should be aware that only model numbers found in the database are considered DLC qualified. Please contact the DLC inbox at info@designlights.org if you cannot find on the QPL a product that you believe has been qualified.

De-Listed Products

As the DLC goes through specification revision processes, currently qualified products are required to be compliant with the effective Technical Requirements at the end of the designated grace periods. Products that are removed from the QPL due to no longer meeting the Technical Requirements are still searchable through the database. Users have the option to select a check-box to include de-listed products in a product search.

XII. Logo Guidelines

Once a product or group of products is qualified, manufacturers may market that specific product or group of products as DLC qualified. Before including reference to DLC qualification in any marketing materials, please review the following DLC Logo Guidelines. Additional detail can be found on the DLC [Logo Guidelines web page](#).

DLC also uses and protects the trademark "DesignLights Consortium" and "DLC." The DLC Logos, as well as the trademark "DesignLights Consortium" and "DLC" are all either pending applications or registered with the US Patent and Trademark Office. These trademarks help make the DLC identity a valuable asset, and like any asset with appreciable value, the trademarks must be properly used and protected.

The DLC Logos and trademarks are not only a valuable asset to NEEP and the DLC, but equally valuable to all members and product manufacturers who qualify. In order to retain that value, all stakeholders must use the DLC Logos and trademarks consistently and in compliance with these Guidelines in all communication and outreach materials. Ensuring that the DLC Logos

and Trademarks are properly used protects every DLC stakeholder’s investment in the program—and consumer confidence in the DLC brand.

Authorized Use of the DLC Logos and Trademarks

As a general rule, third parties (i.e., anyone other than NEEP and those granted explicit permission by NEEP) are not allowed to use the DLC Logos without permission. The purpose of the DLC Logo and Trademark Use Guidelines is to provide clarification about how the DLC Logos and Trademarks should be used by its stakeholders. The DLC Logos must always be used pursuant to the specifications in these Guidelines to identify the DLC or participation in the DLC program. Any use that falls outside of these specifications is strictly prohibited.

Participants in the DLC program agree to the DLC Logo and Trademark Use Guidelines and all DLC rules and policies, which may be updated at any time. Participants must acknowledge that the DLC (through Northeast Energy Efficiency Partnerships, Inc.) is the sole owner of the DLC Logos and Trademarks, and agree not to interfere with the DLC’s rights in them, and acknowledge that goodwill derived from their use accrues only to the DLC. The DLC will review stakeholder’s use of the DLC Logos and Trademarks on a number of materials, including specifications sheets, website, and other marketing materials. The DLC reserves the right to request modification for any non-compliant use as well as terminate participation in the DLC program for continuous violations of the Guidelines.

The DLC Logos and Trademarks and authorized participation are as follows:

I. **DLC Program Logo**



Used by DLC members: To indicate membership on web pages of their energy efficiency programs.

** DLC members are regional, state, utility, and energy efficiency programs throughout the U.S. and Canada*

Lighting Testing Laboratories: To indicate available product testing services necessary for manufacturers to submit an application. *NOTE: Laboratories must meet the DLC accreditation requirements to display the logo. The DesignLights Consortium name and marks may not be displayed in test reports or be used in a manner that implies NEEP or DLC endorsement of a laboratory or its services, only that those services are provided to manufacturers.*

Manufacturers and Distributors

May not use the Program Logo without explicit permission by the DLC.

Other: Additional use of the DLC program logo will be assessed on a case-by-case basis. Please contact designlights@neep.org.

- The DLC Program Logo may not be altered, cut apart, separated, or otherwise distorted in perspective or appearance.
- The preferred color for the DesignLights Consortium mark is black for the text and yellow for the graphic. Alternate versions are available - such as colors being reversed out to white with yellow graphic are allowed. PLEASE refer to the style guide for information on the Standard and Alternative ways to use the DLC Program Logo.
- The DLC Program Logo must be large enough so that the lettering inside the logo is clearly legible in all mediums.
- The DLC Program Logo must be clear within “C” space of logo elements from all sides.
- The DLC Program Logo size should never be under 1.72 inches wide and .45 inches high to maintain legibility.

Common Mistakes to Avoid

- Do NOT remove the words “DESIGNLIGHTS CONSORTIUM” from the DLC Program Logo.
- Do NOT reproduce the DLC Program Logo smaller than 1.72 inches (width) and .45 inches (height).
- Do NOT use the DLC Program Logo to indicate DLC Qualification of a product; see below for qualification usage.
- Do NOT copy the DLC Program Logo from the internet; please contact designlights@neep.org for the official image files.

For further instructions on the use of the DLC Program logo, please review the [DLC Program Logo Style Guide](#).

II. DLC QPL Product Logo



III. DLC QPL Premium Logo



The following guidelines apply to the use of both the DLC QPL Product Logo and the DLC QPL Premium Logo (“DLC QPL Logos”). Whereas the DLC QPL Product Logo may be used for both qualified luminaires and qualified networked lighting controls systems, the DLC QPL Premium Logo is not applicable to the controls systems.

For Use By:

Manufacturers and Distributors (including private labelers)

To indicate that certain products have been DLC qualified and are listed on the QPL.

NOTE: Use may be of the DLC QPL Product and Premium Logo (pictured above), or Approved Terminology, such as (1) “Product X is a DesignLights Consortium qualified product;” (2) “Product Y is listed on the DLC QPL;” or (3) underneath the product, indicate “DesignLights Consortium Qualified luminaire/system” or “a luminaire/system that is listed on the DesignLights Consortium Qualified Products List.”

Used by Manufacturers and Distributors: To indicate that certain products are listed on the DLC QPL and meet the technical requirements of the DLC Premium Classification. [View](#) for the technical requirements for the DLC Premium Classification.

Guidelines for Use of the DLC QPL Product and DLC QPL Premium Logos

- The DLC QPL Premium Logo may not be altered, cut apart, separated, or otherwise distorted in perspective or appearance.
- The preferred color for the DLC QPL Premium Logo is black and yellow. Similar to above, there are alternative formats available. Please refer to [the style guide](#) for information on the Standard and Alternative ways to use the DLC QPL Premium Logo.
- The DLC QPL Premium Logo must be large enough so that the lettering inside the logo is clearly legible in all mediums.
- The DLC QPL Premium Logo must be clear within “C” space of logo elements from all sides.
- The DLC QPL Premium Logo should never be under .5 inches wide and .5 inches high to maintain legibility.

Use of the Logos on General Marketing Materials

General Marketing Materials are defined as Website Home Pages and General Information Pages such as About Us Pages, Covers of Brochures and Catalogs, Tradeshow Booth Displays - not in reference to specific products.

- A pre-requisite for use of the DLC QPL Logos on general marketing materials is that the user in question must have products listed on the DLC QPL under the appropriate classification, or else the user must cease use of the DLC Product and Premium Logos immediately.
- The DLC QPL Logos may be used on general marketing materials to indicate the user has products listed on the QPL without reference to the exact model numbers that appear on the QPL.

Use of the Logo on Product-Specific Marketing Materials

- The DLC QPL Logos or Approved Terminology may only be used in association with specific products or control systems that have been verified to meet the technical requirements of the DesignLights Consortium and which appear on the DLC QPL.
 - The DLC Premium logo may only be used in association with products that have been verified to meet the technical requirements of the DLC Premium classification and which appear on the DLC QPL.
- In order to use the DLC QPL Logos for Solid State Lighting products, the user must provide the exact model numbers or DLC Product Codes on the marketing material.
 - This information will allow the reader to locate the identified product on the most current version of the DesignLights Consortium Qualified Products List without further aid.
 - If not all products on the specific marketing materials are qualified, the user must indicate so in a clear manner so that the reader can easily determine which products are listed.
- In order to use the DLC QPL Logos for Networked Lighting Control systems, the user must provide the qualified system name on the marketing material as it is listed on the Networked Lighting Control QPL.
- Products or control systems which have not yet been qualified should under no circumstances display the DLC QPL Logos.

- For practical purposes, this means that users applying for qualification for their products should refrain from adding the DLC QPL Logos to specification sheets and other marketing materials until after the product has been qualified. Application submissions received with the DLC QPL Logos already on them will be held until that use is corrected.
- Users who sell but do not manufacture products or systems listed on the DLC QPL must include the name of the manufacturer and manufacturer's model number(s) prominently and in proximity to DLC QPL Logos.
- If a product or system has been private labeled and appears on the DLC QPL under a different name, model number, and/or DLC Product Code, the name of the manufacturer and the manufacturer's model number does not have to be displayed.
- Manufacturers are responsible for ensuring that they, as well as any of their distributors and private labelers, use the correct model number on qualified products and that the DLC QPL Logos are being properly used on websites and specification sheets and materials.
 - Manufacturers must list their products on the DLC QPL under any and all brand names under which they are marketed and sold - even the ones that are private labeled.
 - To ease the process of re-listing qualified products under alternate brand names, please consult the [Private Labeling/Multiple Listing Policy](#).

Common Mistakes to Avoid

- Do NOT remove any of the wording, such as DLC, QPL, LISTED, or PREMIUM from the DLC QPL Premium Logo.
- Do NOT reproduce the DLC QPL Premium Logo smaller than .5 inches (width) and .5 inches (height).
- Do NOT use the DLC QPL Premium Logo to indicate membership in the DesignLights Consortium.
- Do NOT use multiple model numbers for your premium qualified products; the model number that is listed under the DLC Solid State Lighting Qualified Products List Premium Classification MUST match the model number used by manufacturers and distributors on websites and specification sheets and materials.
- Do NOT place the DLC QPL Product logo directly on your product or product packaging. No matter what your status of qualification. The logos are intended for use on websites and marketing materials only.
- Do NOT copy the DLC QPL Product Logo, or the DLC QPL Premium Logo from the internet; please contact designlights@neep.org for the official image files.

- NOTE: Specific model numbers should be included in all requests for DLC QPL Logos files.
- Do NOT use the DLC QPL Logos on non-DLC qualified products.
 - This includes products that are marketed by the same manufacturer or under the same brand name and products that are currently under review with the DLC.
- Do NOT use the DLC QPL Premium Logo for products that are NOT qualified as PREMIUM products.
 - This includes products that are qualified products on the QPL, but not qualified as PREMIUM products on the QPL.
- Do NOT use any of the DLC QPL Logos in any other company name, product name, service name, domain name, or website title.
- Do NOT place the DLC QPL Logos in e-mail signature blocks or business cards.
- Do NOT use the DLC QPL Logos to imply a NEEP or DLC endorsement of a company, product, or service.
- Do NOT use any logo that is not listed above to indicate DLC qualification or DLC QPL listing of a product.

For further instructions on the use of the DLC Program logo, please review the [DLC Premium Logo Style Guide](#).

IV. The Trademarks DesignLights Consortium® and DLC®

For Use By:

DLC Members*, Manufacturers, Distributers and other third parties

To reference the DesignLights Consortium on websites and marketing materials.

** DLC Members are regional, state, utility, and energy efficiency programs throughout U.S. and Canada*

Guidelines for Use of the Trademarks

The trademark symbol ® must be used the first time the words DesignLights Consortium or DLC appear in any written material in the following manner:

- The ® symbol should always be in superscript;
- There should be no space between DesignLights Consortium and the ®TM symbol;
- The ® symbol should be repeated in a document for each chapter title and in the first instance on each new web page.

- Do NOT alter the capitalization or spacing for DesignLights Consortium; the trademark should always appear as two words; the D, L and C should be capitalized and there should be no space between the terms DESIGN and LIGHTS.

Common Mistakes to Avoid

- Do NOT include “DLC” or “DesignLights Consortium” in your product or company name.
- Do NOT include “DLC” or “DesignLights Consortium” in your product model number.
- Do NOT place the “DLC” or “DesignLights Consortium” trademarks directly on your product or product packaging, regardless of the status of qualification. The trademarks are intended for use on websites and marketing materials only.
- Do NOT use the “DLC” or “DesignLights Consortium” trademarks on non-DLC qualified products.
- This includes products that are marketed by the same manufacturer or under the same brand name and products that are currently under review with the DLC.
- Do NOT use the “DLC” or “DesignLights Consortium” trademarks in any other company name, product name, service name, domain name, or website title.
- Do NOT use any trademark that is not listed above to indicate DLC qualification or DLC QPL listing of a product.
- Do NOT use the “DLC” or “DesignLights Consortium” trademarks to imply a DLC endorsement of a company, product, or services.
- Do NOT use the “DLC” or “DesignLights Consortium” trademarks in webpage tabs or URLs/webpage addresses.

Unauthorized/Improper Use

Unauthorized and/or improper use of the DLC Logos and Trademarks causes confusion among consumers, which results in tarnishment of the brand and its reputation. It may also constitute trademark infringement, trademark dilution, false advertising, fraud and/or other violations of law. The DesignLights Consortium actively monitors the use of the DLC Logos and Trademarks, but also requests the assistance of its stakeholders to help police its brand. To report a trademark violation or to ask for a review of materials, please contact designlights@neep.org.

Upon discovery of a DLC Logo or Trademark violation by a manufacturer or distributor, the DLC will take the necessary steps to have that violation corrected as quickly as possible in order to minimize the damage. The DLC expects that all stakeholders will

endeavor to be compliant with these Guidelines and will make all changes requested by the DLC in order to achieve compliance.

Violations of Logo Guidelines

In case of DLC Logo and Trademark misuse, the DLC reserves the right to suspend the user's program privileges for up to 18 months. This may include a suspension (de-listing) of all currently qualified products, as well as an inability to qualify additional products during the suspension. The DLC will notify the user of the violation and consequences.

In addition to suspension and/or de-listing of products, the DLC reserves the right to charge a fee to cover legal expenses of the DLC trademark compliance program. Such a fee may start at \$250 per violation, depending on the severity of the infringement.

Conclusion

The DLC encourages the use of the logos and trademarks under the appropriate applications as documented in these Guidelines. Participants in the DLC Program must comply with the DLC Logo and Trademark Use Guidelines and all DLC rules and policies, which may be updated at any time. The DLC (through Northeast Energy Efficiency Partnerships, Inc.) is the sole owner of the DLC logos and trademarks and actively monitors and takes action against violations of the DLC Logo and Trademark Use Guidelines and DLC policies.