



Horticultural Lighting V2.1

September 9, 2021

Agenda

- Overview 2.1
- Testing & Reporting , Application Form Changes, QPL updates
 - DC
 - Power Source Test Report
 - Cabling Loss Calculator
 - Active Cooled
 - Inlet fluid temperature performance calculator
 - Lamps
 - Spectral Tuning
- QPL Filters
- Fees
- Review Times
- Delisting
- Brand Name Consistency
- Q&A

Webinar Team



Q&A Moderators



Bernadette Boudreaux
Associate Director of Operations



Aaron Feldman
Senior Technical Operations Analyst



Kasey Holland
Technical Manager



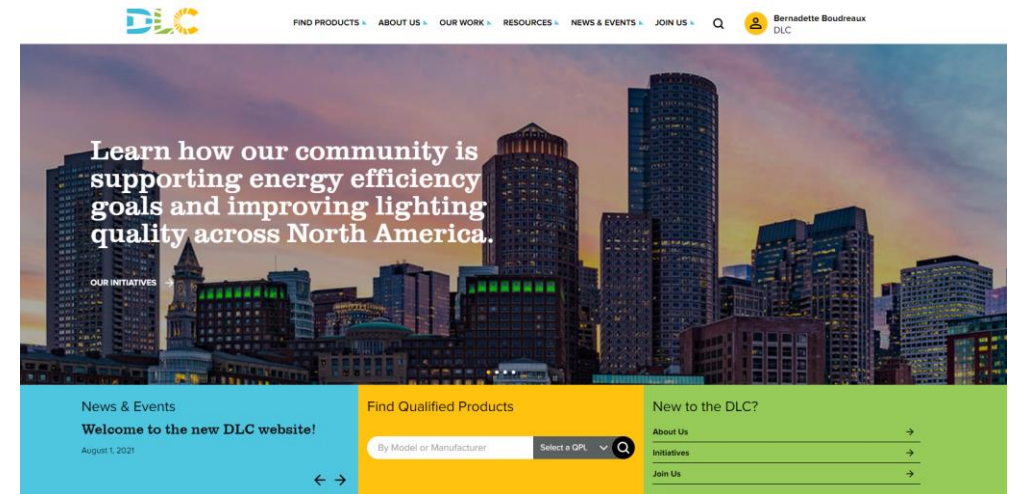
Dave Ryan
HORT Lead
Reviewer



Maddie Sligh
HORT Lead
Reviewer

Webinar Logistics

- **Slides and recorded webinar will be posted** on the *DLC Website* www.designlights.org shortly after today's presentation
- All attendees are automatically muted
 - If you experience technical issues, please use the chat feature to let us know



Questions and Answers

- We will leave **15 minutes** after the presentation to answer questions. Please enter your Questions pane in GoToWebinar.
 - DLC technical support team will answer questions as they come in via the questions pane
 - Some questions will be answered aloud (anonymously) at the end during the Q&A session



The screenshot displays the GoToWebinar interface. At the top, there is a menu bar with 'File', 'Options', 'View', and 'Help'. Below this is a 'Sound Check' section with a volume indicator and a 'Sound Check' button. Underneath, there are three radio button options: 'Computer audio' (selected), 'Phone call', and 'No audio'. Below these are two microphone level indicators and two speaker/HP level indicators. A 'Talking:' label is present. The 'Questions' pane is open, showing a checkbox for 'Show Answered Questions' which is checked. Below this is a table with columns for 'X', 'Question', and 'Asker'. At the bottom of the pane, there are buttons for 'Send Privately' and 'Send to All'. The footer of the pane displays 'Test Webinar' and 'Webinar ID: 739-969-195', along with the GoToWebinar logo.

V2.1 Overview

Hort Version 2.1

- Version 2.1 builds upon V2.0
 - V2.0 will not be impacted by V2.1
 - I.e. No delisting impacts from V2.1
 - Hort V2.0 products auto-updated to 2.1 on QPL on Sept 1, 2021
 - HORT V1.2 Product require an update to 2.0/2.1 requirements
 - Adds eligibility for
 - DC and Modular/Dynamically configurable systems
 - Products with *externally*-supplied active cooling capabilities
 - LED lamp products
- Not eligible
 - Products that are **light engines** (analogous to LS-1 section 6.8.5.5) or identified as **retrofit kits** intended to replace the light sources or other structures within an existing fixture are not eligible for qualification at this time.
 - Fixtures and/or lamps that **incorporate light sources other than LED**, whether as sole-source or as LED-hybrid fixtures, are not eligible for qualification at this time.

Hort Version V2.1

- Each new product category is included as “Special Considerations”
- Sub-sections include:
 - Eligibility
 - Technical Requirements
 - QPL Listing

636 **Special Considerations for LED Replacement Lamps**

637 **Eligibility Information: Linear Replacement Lamps**

638 LED replacements for linear fluorescent lamps are eligible with the following conditions:

639 • The DLC defines all tube-style LED products that use lamp holders (i.e. sockets or tombstones)

640 in the luminaire to mechanically and/or electrically connect to the fixture housing and electric

641 supply to fall under these testing requirements. Products that do not employ lamp holders are

642 not eligible as lamps under this policy.

643 • The DLC defines bare lamp as the performance characteristics of a replacement lamp, including

644 the effects of an external ballast (for Type A and Dual Mode lamps) or driver (for Type C lamps),

645 if applicable, when operated outside of a luminaire or retrofit kit.

646 • The following linear lamp replacement types (i.e. T8, T5, or T5HO) and specific lengths are

647 eligible for listing. Marketing material must indicate that they are intended to replace

648 fluorescent lamps of the same type and length. Products of different lengths, bases, or

649 marketed as intended to replace other types of fluorescent lamps are not eligible. Products

650 intended to operate on magnetic ballasts or those with different base types are not eligible.

651 ○ **T8 Two-Foot Linear Replacement Lamps**

652 ▪ LED lamps intended to replace T8 fluorescent lamps. These LED lamps shall be

653 24 inches long and employ a G13 base.



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Workplan Timeline Solid-State Lighting **Horticultural Lighting** Networked Lighting Controls LUNA

Horticultural Lighting Program

The DLC's Horticultural Lighting Program is designed to accelerate widespread adoption of energy-saving LED technology in the horticultural lighting sector. With energy consumption from horticultural facilities continuing to grow, we're creating tools and resources to position controlled environment agriculture as a leader in energy efficiency.

Technical Requirements

HORT Technical Requirements V2.1
Revision Cycle

Qualify a Fixture

Application Process
Application Review Timeframes
Single Product Applications
Family Grouping Applications
Private Label Applications
Update Listed Fixtures
Delisting Requests
Logo Use Guidelines

Learn

Hort Lighting Resources
Hort FAQs
Past Technical Requirements

ANNOUNCEMENTS

Hort Technical Requirements V2.1 Effective



DC-Powered Fixtures

DC-Powered Fixtures Eligibility Requirements

DLC defines two (2) types of DC-powered fixtures for listing:

1. **Modular fixtures and/or Dynamically Configurable**

- Where one AC-to-DC power source supplies multiple fixtures. The power source:
 - May have minimum / maximum number of fixtures that it may serve
 - May be attached to one of the fixtures OR located remotely from the fixtures
 - Power source(s) marketed as intended for that specific model or family

2. **Fixtures that operate on DC-power**

- Fixtures may be wired to an AC-to-DC power source outside the fixture or in a separate room, or may be part of an off-grid, DC-only horticulture facility
- AC-to-DC power sources may or may not be marketed for the fixture

DC-Powered Fixtures Testing Requirements

- *All V2.0 Horticultural Lighting Technical Requirements must be met*
- Two (2) reports are required in the place of AC testing:
 - 1. DC-Powered “All-on” Photon Flux Test Report**
 - LM-79 report with all required photon flux and power values for verification, including DC voltage, current and power
 - 2. Power Source Test Report**
 - A performance table for power sources marketed with the fixture
 - May come from benchtop testing, or a specification sheet from the power source manufacturer

DC-Powered Fixtures Testing Requirements

1. DC-Powered “All-on” Photon Flux Test Report

- LM-79 report with all required photon flux and power values for verification, including DC voltage, current and power
- DC-Powered horticultural fixtures will be tested, and efficacy performance will be listed, without additional cabling
- ***DC-Powered horticultural fixtures must meet the PPE threshold requirement at their AC De-rated PPE value***
 - E.g. a 100W lightbar with a DC-powered PPE of 2.0 $\mu\text{mol/J}$ and a power source with a worst-case efficiency of 95% at 20% load would be listed on the QPL at 1.9 $\mu\text{mol/J}$ AC De-rated PPE and 105W AC De-rated Input Wattage

DC-Powered Fixtures Testing Requirements

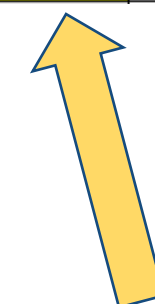
2. Power Source Test Report

- Report per configuration at two load points per input voltage
- For both types of DC-powered fixtures, if power sources are offered for sale with the fixture or marketed by the fixture manufacturer as intended power sources for that specific fixture model or family, applicants must provide:

The following performance values for all power sources (AC/DC driver) :	At <i>up to two (2)</i> load points of the driver:
<ul style="list-style-type: none">• Consumed input power• Power Source DC output power maximum• Min and max power with this fixture• Power factor• Total Harmonic Distortion (THD)	<ul style="list-style-type: none">• Maximum power load• The load point between maximum power and 20% of maximum power that results in <u>worst-case efficiency</u><ul style="list-style-type: none">• The lowest worst-case efficiency will determine the AC De-rated Input Wattage and PPE

Power Source Test Report Tool

Fixture Model Number(s)	XXX-123										
AC Input Voltage Range (V)	120										
Power Source Loading Percentage:	AC-derated performance is 90.90% efficiency at 90.90% loading on a 32W power source at BBB-124V										
Power Source Model Number	Nominal AC Input Voltage (V)	Power Source Maximum Output (W) [Output rating irrespective of fixture]	Minimum Output Power with this fixture type (W) [Fixture type at full output]	Maximum Output Power with this fixture type (W) [Fixture type at full output]	Loading Scenario	Loading Percentage (%) [Relative to maximum for this fixture type-power source combination]	Tested AC Input Power (W)	Tested DC Output Power (W)	Tested Efficiency (%)	Power Factor	Total Harmonic Distortion (current) (%)
BBB-123	120	30	25	31	Full	106.5	35	33.00	94.29	0.92	17.0
					Worst-Case Efficiency	100.0	34	31.00	91.18	0.94	18.0
BBB-124	277	32	26	33	Full	103.0	34	34.00	100.00	0.94	14.5
					Worst-Case Efficiency	90.9	33	30.00	90.91	0.93	19.2



Worst Case

DC-Powered Fixtures Reporting Requirements

1. Cabling Loss Example

- The fixture wattage in the cabling guidance must match the input power of the submitted fixture, and the cabling losses must reflect the copper resistance values listed in NFPA 70 National Electrical Code, 2020 Edition. Applicants may choose their own tradeoff of cabling gauge and length, as long as it conforms with cabling information provided on the fixture specification sheet.

2. In-Situ Temperature Measurement Test (ISTMT) Requirement

- Power source ISTMT reports are required for all horticultural products sold with external AC-to-DC and DC-to-DC power sources
- DC-to-DC power source ISTMT reports are required for any fixture-level DC-to-DC power sources or drivers

Cabling Loss Calculator

Instructions:

This calculator is required for DC-powered fixtures only.

Enter data for all inputs noted below. The calculator will then determine the cabling losses example text, which will be published on the QPL.

Cells boxed in yellow are automatically calculated.

Separate Excel forms must be provided for each parent product tested to meet the efficacy requirements.


Inputs	
XXX_123	Model Number for Fixture/Product
4	Maximum Number of Fixtures/Products possible with power source
30	Product Watts/fixture at full output: should match LM-79 test report
120	Fixture DC Input Voltage: any voltage suitable to the product and produced by one of the power sources detailed in the power source test report
500	Power Source (or power supply channel) maximum output (W): must be produced by one of the power sources detailed in the power source test report
4	Wiring Gauge (AWG)
Parallel	Wiring (series or parallel)
Required Power Supply Output:	122.45
	Note: if cell contains red text, please review your input values, as the power source wattage is not sufficient to power the maximum number of fixtures listed.
Cabling Loss Example:	4 30W fixtures operating at 120V Parallel-wired with 7629.2 feet of 4AWG cabling to a 500W power source



Application Form Changes-DC Products

New Fields:

- Reported DC Current
- Reported DC PPE
- Reported DC Photon Efficacy
- Reported AC De-Rated PPE
- Reported AC De-Rated Photon Efficacy
- Reported AC De-Rated Input Wattage

	DLC Qualified Products List Horticultural Single/Family Submission Form
Entire application form must be filled out and submitted online using your manufacturer account.	
Company	
Brand Name	
Contact Name	
Phone	
Email	
Website	
Product Information	
Input Power Type Select if the product family is an AC or DC product. If your family has both AC and DC products, please submit separate documents. Please refer to the V2.1 Horticultural Technical Requirements for additional information on DC products	DC

DC-Powered Fixtures

QPL Listing Information

- QPL fields to be reported:
 - **“Input Power Type”** distinguishes DC-Powered products from AC.
 - **“Tested Voltage”** and **“Tested DC Input Current”**
 - DC-powered LM-79 values
 - **“DC Input Wattage”** and **“DC Photosynthetic Photon Efficacy ($\mu\text{mol/J}$) (400-700nm)”** will display the values from the all-on DC photon flux report.
 - Optional new field **“DC PE_{PBAR} ($\mu\text{mol/J}$) (280-800nm)”** will be reported if PE_{PBAR} ($\mu\text{mol/J}$) (280-800nm) is reported.
 - Additionally, new fields will display **“AC De-rated Input Power”** and **“AC De-rated PPE ($\mu\text{mol/J}$) (400-700nm)”** only for DC-powered fixtures.
 - Optional new field **“AC De-rated PE_{PBAR} ($\mu\text{mol/J}$) (280-800nm)”** will be reported if PE_{PBAR} ($\mu\text{mol/J}$) (280-800nm) is reported.
 - De-rating will be based on the lowest conversion efficiency shown on the power source test report, if provided
 - De-rating will be based on an 87.5% conversion efficiency for products that are not marketed with a power source
- The fields currently used for AC-powered **“Input Power”** and **“PPE”** will not be populated.
- The worst-case values of THD and Power Factor will be shown in the existing fields.



Externally Supplied Actively Cooled Fixtures

Externally Supplied Actively Cooled Fixtures: Eligibility & Baseline Requirements

- **Eligibility** includes LED horticulture fixtures that employ externally supplied circulating liquid to actively cool
 - Products in which liquid, often water or a water/glycol solution, flows through input and output ports of each fixture in the system, being channeled through a cooling plate or other heat exchanger within the fixture
 - Externally supplied ducted forced-air **are not eligible** at this time
- *All V2.0 Horticultural Lighting Technical Requirements must be met*

Externally Supplied Actively Cooled Fixtures: Reporting Requirements

- Manufacturers must specify allowable operating conditions that should be supplied to or affect the LED product performance, including:
 - Solution type/concentration
 - **Restrictions or limitations** to allowable solution type/concentration must be described
 - Flow rate
 - Inlet fluid temperature range
 - **Min and Max allowable operating inlet fluid temperature** must be described
 - **Measured input power and measured PPF as functions of inlet fluid temperature** must reported (in 5 degree Celsius increments, or smaller) covering the full range must be provided.
 - Self-Protect cut-off functionality
 - **Fail-to-off functionality must be present** to protect the fixture in the event the externally powered active cooling system fails and must be described

Externally Supplied Actively Cooled Fixtures: Testing Requirements

- Manufacturer's allowable operating conditions inform the threshold-qualifying state(s) to be tested.
 - **Water shall be the solution** during LM-79 and ISTMT testing
 - **Median inlet fluid temperature** shall be used during **LM-79** testing
 - E.g. Median inlet fluid temperature is 35C, if allowable inlet fluid temperature range is 20-50C
 - Average and maximum inlet fluid temperatures must be measured alongside LM-79 stabilization measurements and reported
 - Outlet fluid temperature must be measured and reported
 - **Worst-case inlet fluid temperature** shall be used during **ISTMT** testing
 - E.g. Worst-case inlet fluid temperature is 50C, if allowable inlet fluid temperature range is 20-50C
 - Average and maximum inlet fluid temperature must be measured alongside ISTMT stability measurements and reported
 - **Average and maximum flow rate**, measured in gallons per minute, must be measured and reported for **LM-79 and ISTMT** testing

Externally Supplied Actively Cooled Fixtures: Testing Requirements

- Manufacturer's allowable operating conditions inform the threshold-qualifying state(s) to be tested.
 - All inlet fluid temperatures must be maintained within a +/- 2.5 degrees Celsius to the target temperature (Median and/or worst-case)
 - All actively cooled horticultural fixtures seeking qualification by the DLC must test the fixture per ANSI/IES LM-79, while employing active cooling.
 - The DLC will accept LM-79 testing with methods or equipment from other goniometer types in addition to Type C and reserves the right to require additional information in these cases.

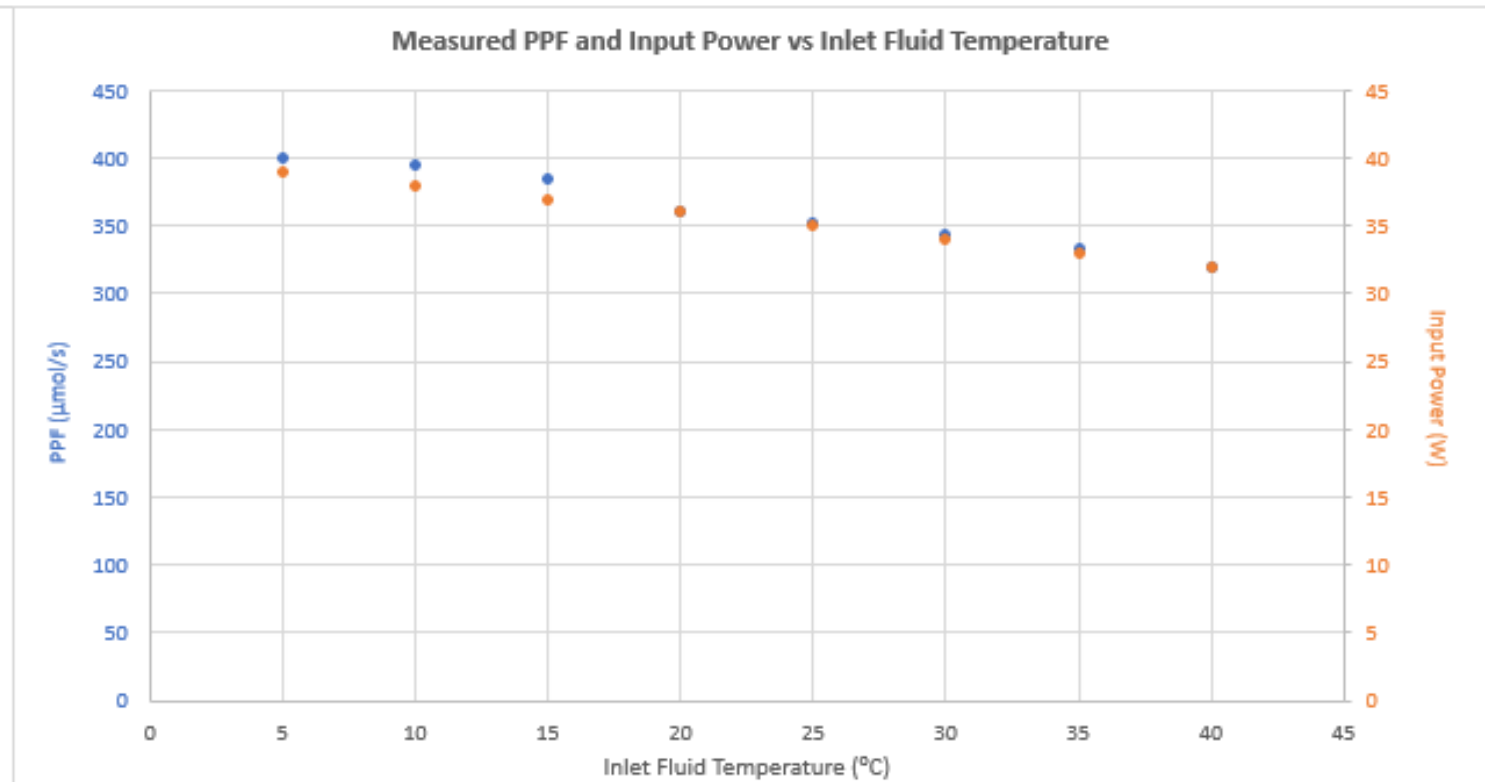
Application Form Changes

Externally Supplied Actively Cooled Fixtures	
<p>Actively Cooling Presence Select Yes if product utilizes externally supplied actively cooled functionality. Please refer to the V2.1 Horticultural Technical Requirements for additional information on externally supplied actively cooled fixtures</p>	
<p>Solution Concentration Restrictions Please enter any restrictions or limitations to allow able solution type/concentration. This must also be present on the submitted specification sheets or marketing materials</p>	
<p>Minimum Allowable Inlet Fluid Please enter the min inlet fluid temperature allowed for your fixture(s) in Celcius. This must also be present on the submitted specification sheets or marketing materials.</p>	
<p>Maximum Allowable Inlet Fluid Please enter the max inlet fluid temperature allowed for your fixture(s) in Celcius. This must also be present on the submitted specification sheets or marketing materials.</p>	
<p>Self-protect cut off temperature Please enter the maximum inlet fluid temperature at which the fixture will turn off in Celcius. This must also be present on the submitted specification sheets or market materials</p>	



Performance Impact of Inlet Fluid Temperature

Model Number	BBB-123	
Flow Rate (Gallons/Minute)	5	
Min Inlet Fluid Temp	25	
Max Inlet Fluid Temp	30	
Inlet Fluid Temperature (°C)	PPF (μmol/s)	Input Power (W)
5	400	39
10	395	38
15	385	37
20	360	36
25	352	35
30	344	34
35	334	33
40	320	32



Externally Supplied Actively Cooled Fixtures: QPL Listing Information

- In addition to the existing fields, externally supplied actively cooled fixtures will have the following information listed on the QPL:
 - **“Active Cooling Presence”**
 - Externally supplied circulating liquid cooled horticultural fixtures will be distinguished as “active cooling presence” and will be designated as such on the Hort QPL (e.g. as a filterable field)
 - **“Tested Inlet Fluid Temperature” and “Tested Flow Rate”**
 - Maximum measured inlet fluid temperatures and flow rates per ISTMT and LM-79 testing
 - Average measured inlet fluid temperatures and flow rates per ISTMT and LM-79 testing

Externally Supplied Actively Cooled Fixtures: QPL Listing Information

- In addition to the existing fields, externally supplied actively cooled fixtures will have the following information listed on the QPL:
 - **“Tested Outlet Fluid Temperature”**
 - Maximum and Average measured outlet fluid temperatures and flow rates per LM-79 testing
 - Additional reporting fields, relating to the allowable operating conditions for the system including:
 - **“Solution Concentration Restrictions”**
 - **“Minimum Allowable Inlet Fluid Temperature”** and **“Maximum Allowable Inlet Fluid Temperature”**
 - **“Self-Protect Cut-Off Temperature”**
 - Reported data depicting **PPF and Input Wattage as functions of Inlet Fluid Temperature**

LED Replacement Lamps

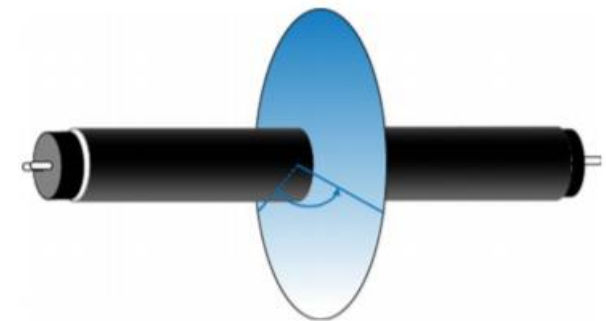
The slide features a white background with a large green arrow pointing to the right. The arrow's outline is a thick, vibrant green. The text "LED Replacement Lamps" is centered within the white area in a bold, black, sans-serif font. The background is partially framed by a blurred image of green lettuce leaves, which are visible in the top-left and bottom-right corners, suggesting a connection to agriculture or indoor farming.

LED Pin-base Fluorescent Replacement Lamps (TLEDs)

- **Eligibility** includes:
 - Two-, Four-, and Eight-foot T8 replacement lamps
 - Four-Foot replacements for T5 and T5HO lamps
- **The bare lamp** must meet all V2.0 Horticultural Lighting Technical Requirements*
 - Bare lamp includes the effects of an external ballast or driver, if applicable, when operated outside of a luminaire or retrofit kit
 - Lamp must have a Beam Angle $\geq 140^\circ$



G5 or G13 Base



Beam angle $\geq 140^\circ$

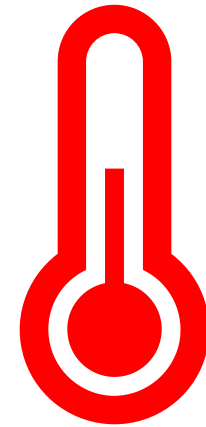
Mogul-base HID Replacement Lamps (MogLEDs)

- **Eligibility** includes:
 - E39 or E40 Base, UL Type B only
 - Directional **or** Omni-directional lamps allowed
 - No reference housing requirements
- The bare lamp must meet all V2.0 Horticultural Lighting Technical Requirements*
 - Must report **beam angle and field angle**
 - Must report **intended mounting position**



Electronics Lifetime and Warranty

- Instead of Driver Lifetime, lamps must:
 - **Perform ISTMT** at the highest rated temperature using a location on the lamp's housing, designated by the manufacturer
 - **Provide a spec sheet** showing the lifetime of **50,000 hours** based on the location's operating temperature and a diagram showing the TMP
 - **Submit an ISTMT report** consistent with the spec sheet
- Instead of a 5-year warranty, lamps must have a **3-year warranty**



Application Form Changes

- Intended Mounting (Screw Base Only)

For Lamps only	For Lamps only	For Lamps only Please enter in feet.	For all lamp shapes except for cylindrical lamp shapes. Please enter in inches.	For all lamp shapes except for cylindrical lamp shapes. Please enter in inches.	For cylindrical lamp shapes only. Please enter in inches.	For Screw-Base Replacements for HID Lamps only
Base Type	UL Type	Length (ft)	Width (in)	Height (in)	Diameter (in)	Intended Mounting

For lamps only		For Screw-Base Replacements for HID Lamps only	
Reported Beam Angle	Reported Field Angle		

Product Size Information - TLEDs

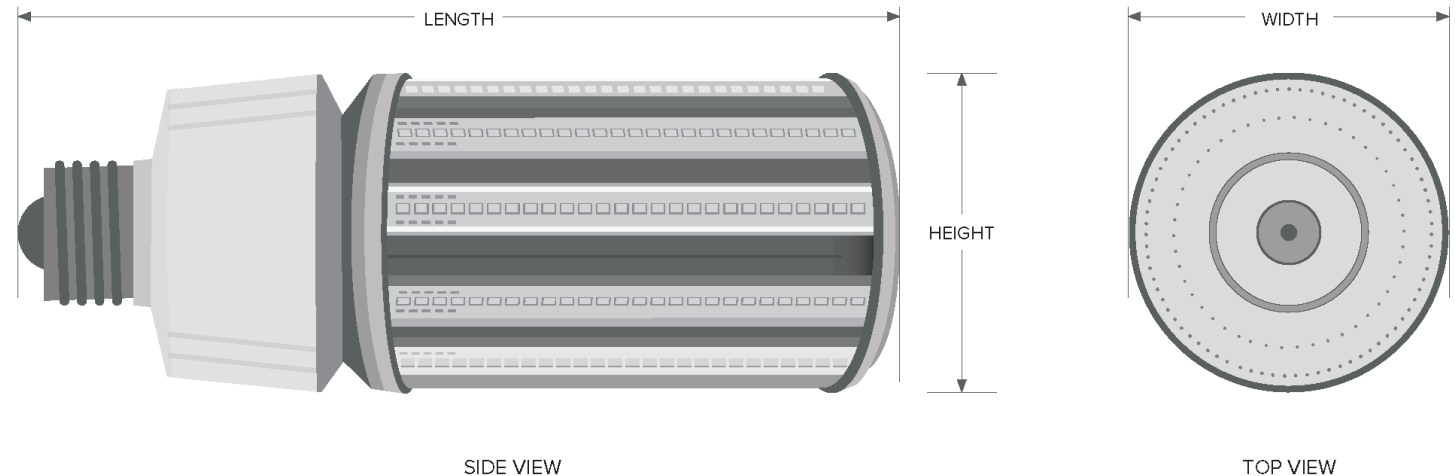
- Linear replacement lamps must report on the application form the following product size information:
 - Nominal length, including pin bases (feet)
 - Diameter (inches)



Product Size Information - MogLEDs

- Screw-base replacement lamps must complete the following fields on the application form:

- Length (feet)
- Height (inches)
- Width (inches)



- Width and height can be the same value if the lamp is round (“corn-cob style”).
- If the lamp is not round (“paddle style”), **width should be the maximum dimension perpendicular to the screw base**

Lamps: QPL Listing Information

- **Product Category**

- Linear Replacement Lamp; Screw-Base Replacements for HID Lamps – Omni-Directional; or Screw-Base Replacements for HID Lamps – Directional
- Horticultural Lighting Fixture will be used for non lamp products

- **Base type**

- G13, G5, FA8, E39, E40

- **Product size information**

- Described in previous slides

Lamps: QPL Listing Information

- **UL Type**

- Linear Replacement Lamps: UL Type A, UL Type B, Dual Mode (UL Type AB), UL Type C
- Screw-base replacements for HID lamps: UL Type B

- **Reported Beam Angle**

- TLEDs must have a Beam Angle $\geq 140^\circ$; no threshold for MogLEDs

- **Reported Field Angle** (Screw-Base Replacements for HID Lamps only)

- **Intended Mounting** (Screw-Base Replacements for HID Lamps only)


- Horizontal, vertical, or universal

QPL Filters



QPL filters

Product ID: HORTV2.1 AAF20210829-03



HORTV2.1 AAF20210829-02
 Manufacturer:
 Brand:

PRODUCT OVERVIEW	
Model Number	HORTV2.1 AAF20210829-02
Product Name	Asher Apples (copy) (copy) (copy) (copy)
Product ID	HORTV2.1 AAF20210829-03
QPL	Horticultural
Manufacturer	Feldman Flowers
Brand Name	Aaron Acres
DLC Family Code	AAF20210823
Listing Status	Listed
Date Qualified	2021-08-23

PRODUCT INFORMATION	
Qualified Product List	Horticultural
Product ID	HORTV2.1 AAF20210829-03
Manufacturer	Feldman Flowers
Brand	Aaron Acres
Product Name	Asher Apples (copy) (copy) (copy) (copy)
Model Number	HORTV2.1 AAF20210829-02
Technical Requirements Version	2.1
DLC Family Code	AAF20210823

- PRODUCT CATEGORIZATION [VIEW DETAILS](#)
- PRODUCT CAPABILITIES [VIEW DETAILS](#)
- REPORTED PHOTOMETRIC PERFORMANCE [VIEW DETAILS](#)
- REPORTED ELECTRICAL PERFORMANCE [VIEW DETAILS](#)
- TESTED PHOTOMETRIC PERFORMANCE [VIEW DETAILS](#)
- TESTED ELECTRICAL PERFORMANCE [VIEW DETAILS](#)
- TESTED ACTIVE COOLING PERFORMANCE [VIEW DETAILS](#)
- SPECTRAL TUNING PERFORMANCE [VIEW DETAILS](#)
- SQD/PPID [VIEW DETAILS](#)
- VERSION HISTORY [VIEW DETAILS](#)

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TESTED ACTIVE COOLING PERFORMANCE

Tested Average Inlet Fluid Temp from LM-79 testing	3 °C
Tested Maximum Inlet Fluid Temp from LM-79 testing	7 °C
Tested Average Outlet Fluid Temperature	4 °C
Tested Maximum Outlet Fluid Temperature	8 °C
Tested Average Flow Rate	1 GPM
Tested Maximum Flow Rate	5 GPM
Tested Average Inlet Fluid	2 °C

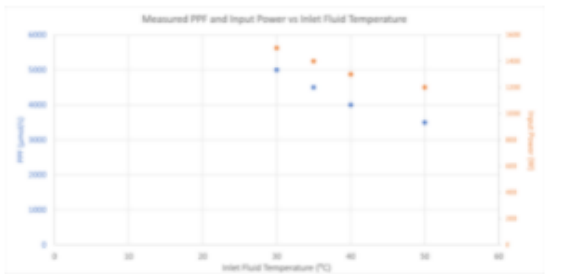
PRODUCT CATEGORIZATION

Category	Screw-Base Replacements for HID Lamps - Directional
Base Type	FA8
UL Type	Type C

REPORTED PHOTOMETRIC PERFORMANCE

Efficacy (280-800nm)

Performance Impact of Inlet Fluid Temperature Graph



Reported Beam Angle	40 °
Reported Field Angle	30 °

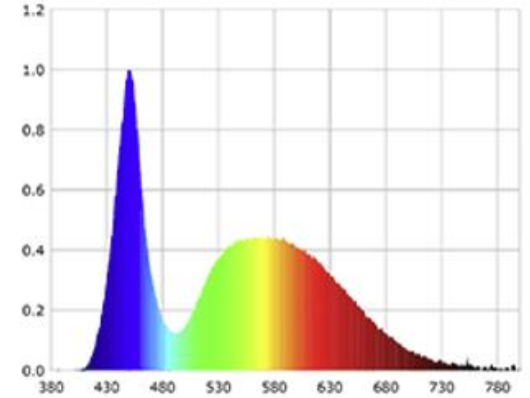
Spectral Tuning

SQD per channel

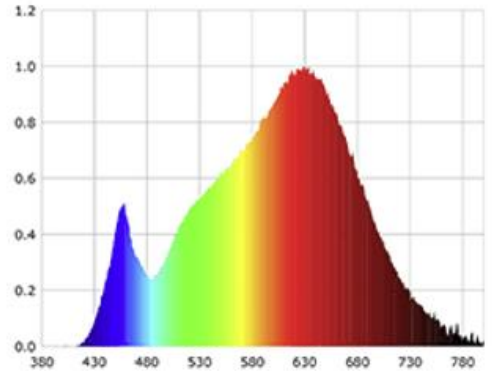
SQD required for each channel

single-channel scenarios, and a description of the control narrative to achieve each setting. For each channel tested, a corresponding graphic for the SQD produced in that setting must be provided in the application. Refer to the SQD section for reporting requirements.

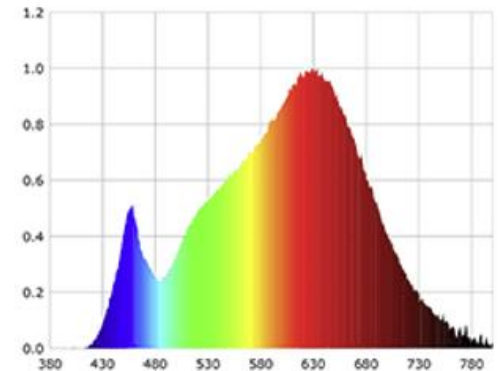
SQD Channel 1



SQD Channel 2



SQD Channel 3



Fees

Fee Updates

New Product Application Fees

Single and/or Parent Product(s)

Basic fixture* with one LED type, one driver, no fan, and no spectral tuning	\$750
Additional LED type included in fixture (Q ₉₀ verification)	\$115
Additional driver available in fixture (lifetime & efficiency verification)	\$105
Internal fan included in fixture (lifetime verification)	\$45
Spectral tuning (per channel flux verification)	\$125
Active cooling (performance verification)	\$175

**A basic fixture does not include any additional features. An advanced product includes at least one of the following: more than one LED; more than one driver; fans; and/or spectral tuning abilities.*



Private Label Application(s)

Application Fee for each parent* within an application	\$500
Each additional family member (child) in the family grouping application	\$30

**Note: Multiple Families can be included in the same Private Label Application but there is a charge for every parent included in the application. Multiple family codes cannot be included in OEM application.*



Review Timeframes

Review Timeframes

Application Type	Initial Review	Comprehensive Review
Single Product (non-DC or ESAC)*	9 business days	7 business days
Family Grouping (non-DC or ESAC)*	9 business days	10 business days
Private Label	6 business days	6 business days
Product Updates**	9 business days	10 business days

**Initial review for DC products may take up to 12 business days. Initial review for externally supplied actively cooled (ESAC) products may take up to 14 business days. Comprehensive review for these types of products is the same as noted above.*

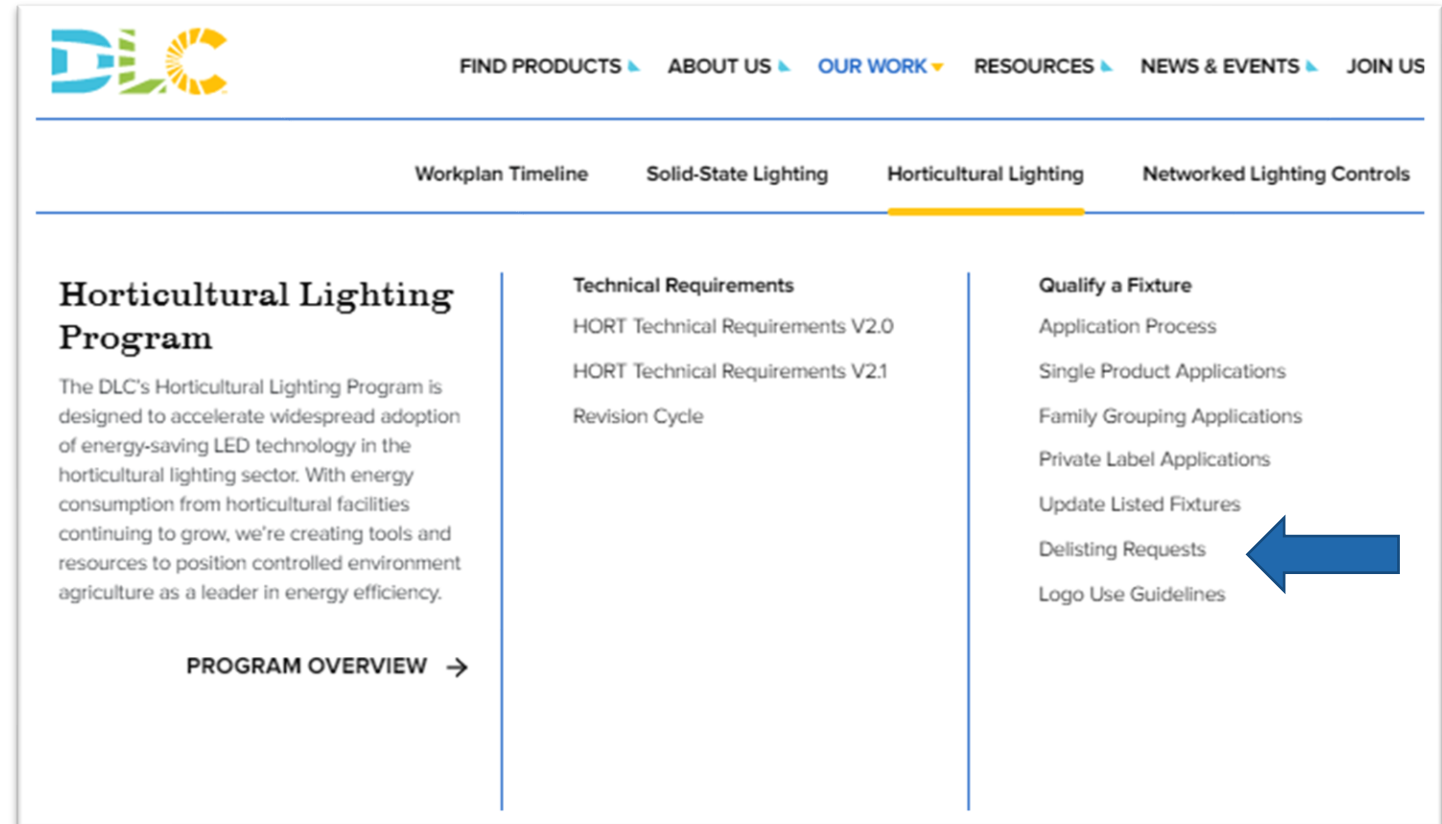
***Delisting requests will be reviewed and completed in the same timeframe as the initial review for product update applications.*



Delisting Requests

Delisting Apps Now Available for HORT

- No charge request can be made to delist any products from the QPL
- Instructions are available
- Delisting Requests will be reviewed and completed in the same time frame as the Initial Review for Product Updates/Update Applications



The screenshot shows the DLC website's navigation and content for the Horticultural Lighting Program. The top navigation bar includes links for FIND PRODUCTS, ABOUT US, OUR WORK, RESOURCES, NEWS & EVENTS, and JOIN US. Below this is a secondary navigation bar with links for Workplan Timeline, Solid-State Lighting, Horticultural Lighting (highlighted with a yellow bar), and Networked Lighting Controls. The main content area is divided into three columns:

- Horticultural Lighting Program**: A section with a brief description of the program and a link for **PROGRAM OVERVIEW** with a right-pointing arrow.
- Technical Requirements**: A list of links including HORT Technical Requirements V2.0, HORT Technical Requirements V2.1, and Revision Cycle.
- Qualify a Fixture**: A list of links including Application Process, Single Product Applications, Family Grouping Applications, Private Label Applications, Update Listed Fixtures, **Delisting Requests** (highlighted with a blue arrow pointing left), and Logo Use Guidelines.

Brand Name Consistency

Brand Name Consistency

- New QPL filters allow for selection of Brand Name
- Brand Names have been submitted inconsistently by manufacturers
- Examples of inconsistency are:
 - Extra spaces or punctuation
 - (Inc.) added to brand name for some not others
- To optimize the search criteria in the QPL we encourage manufactures to use the same nomenclature for repetitive brand names
- If you want to update the brand name for your product to make them consistent you can submit an update application at no charge

The screenshot shows the 'DLC Qualified Product Lists' interface. At the top, it says 'You have 0 saved items'. Below that is a 'Listed Products' dropdown menu. The 'Manufacturer' filter is visible with a search box containing 'filter this list' and a list of manufacturers: 4D BIOS INC, AEssense, AGxano, ALD Green, and Aarni Acres. The 'Brand' filter is also visible with a search box containing 'filter this list' and a list of brands: 4D BIOS, AELIUS LED, AEssenseGrows, AGxano, and ALD GREEN. The 'Brand' filter section is circled in blue.

Question and Answers

Thank you!

Questions about applications and general inquiries should be sent to:

Horticulture@DesignLights.org