Energy · Quality · Controllability℠

SSL V6.0 & LUNA V2.0 Draft 2 Release Webinar

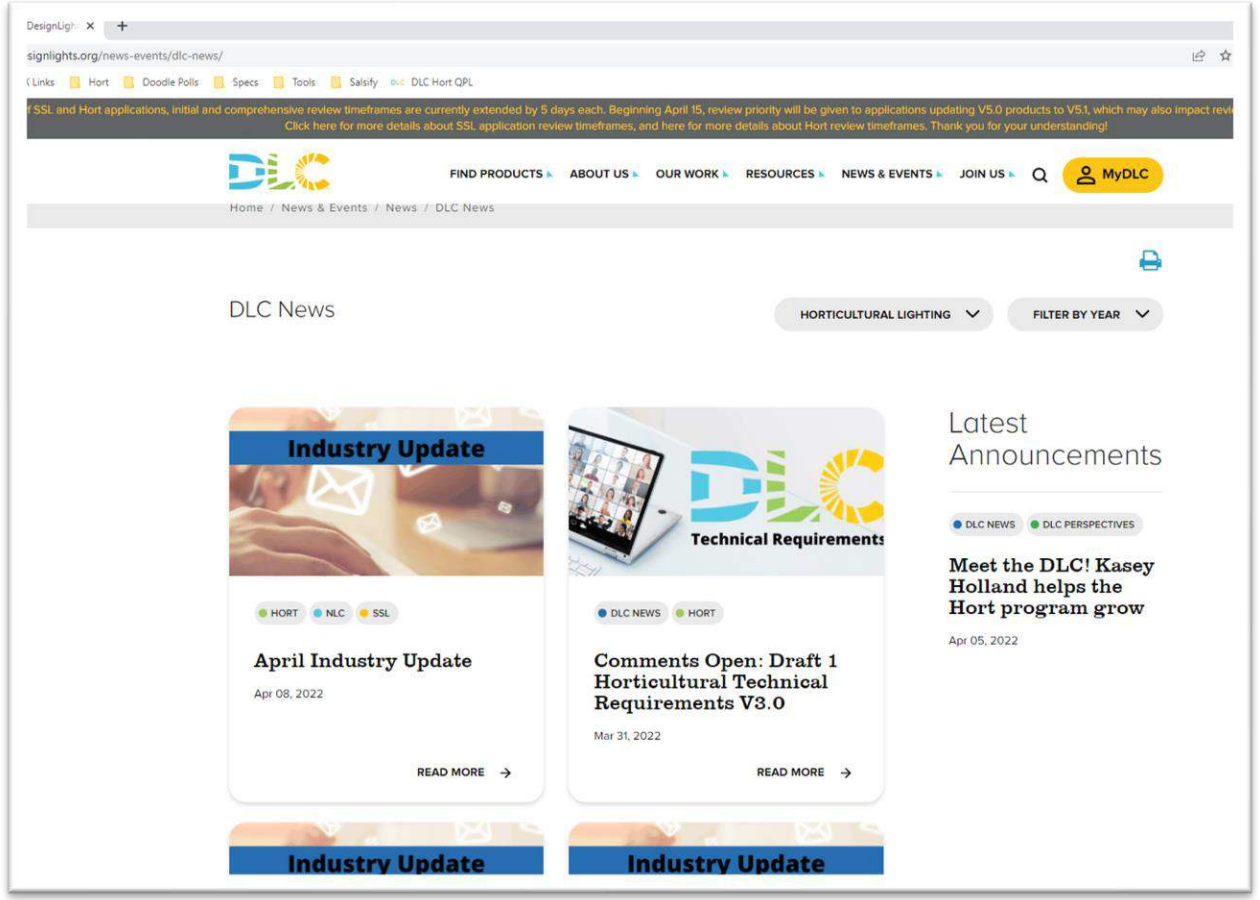
8/6/25

designlights.org

Welcome!

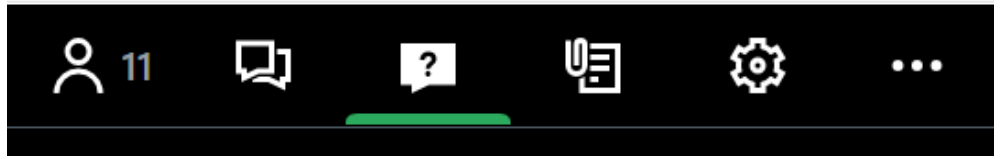
- **Slides and recorded webinar will be posted** on the *DLC News & Events* page at https://designlights.org shortly after today's presentation

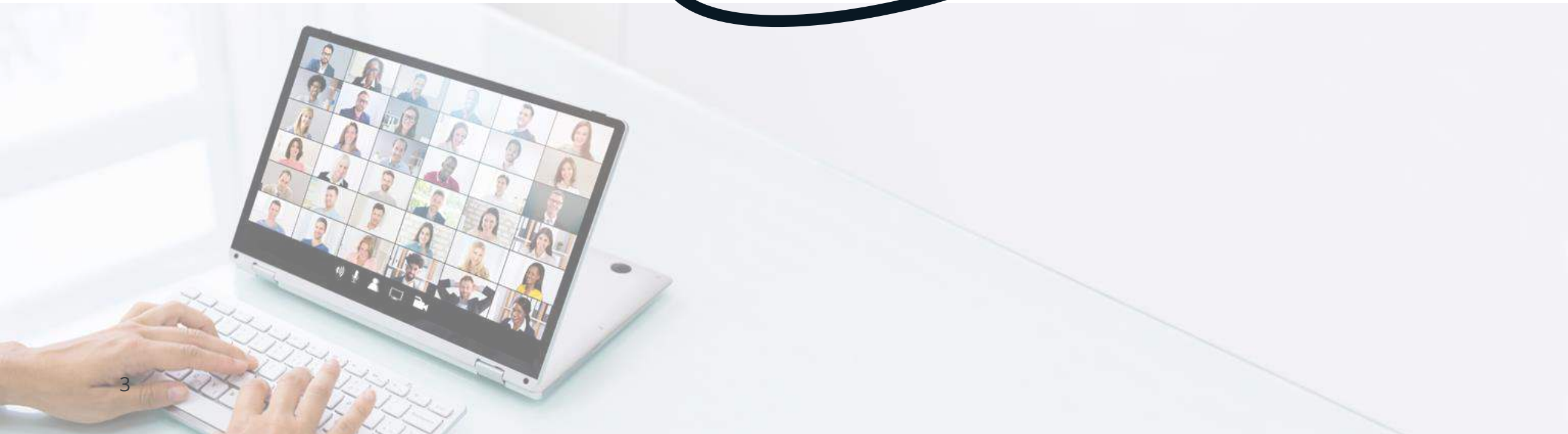
- All attendees are automatically muted



Webinar Orientation

- **Questions will be held until the end during a live Q&A**
  - **Use the Question pane (not Chat) to submit for Q&A**





The DesignLights Consortium is an independent, nonprofit organization providing decision makers with data and resources on quality lighting, controls, and integrated building systems to reduce energy, carbon, and light pollution.

Presenters

Leora Radetsky
Senior Lighting Scientist/ LUNA Program Director

Kasey Holland
Technical Manager

Adrian Martin
Sr. Technical Analyst

Jason Jeunnette
Technical Manager

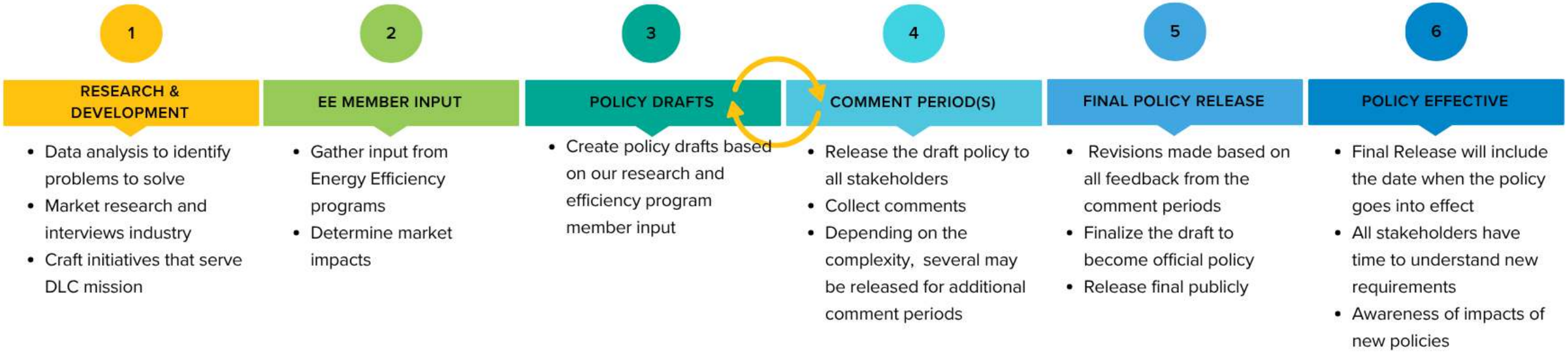
Andrew Antares
Project Manager

Agenda

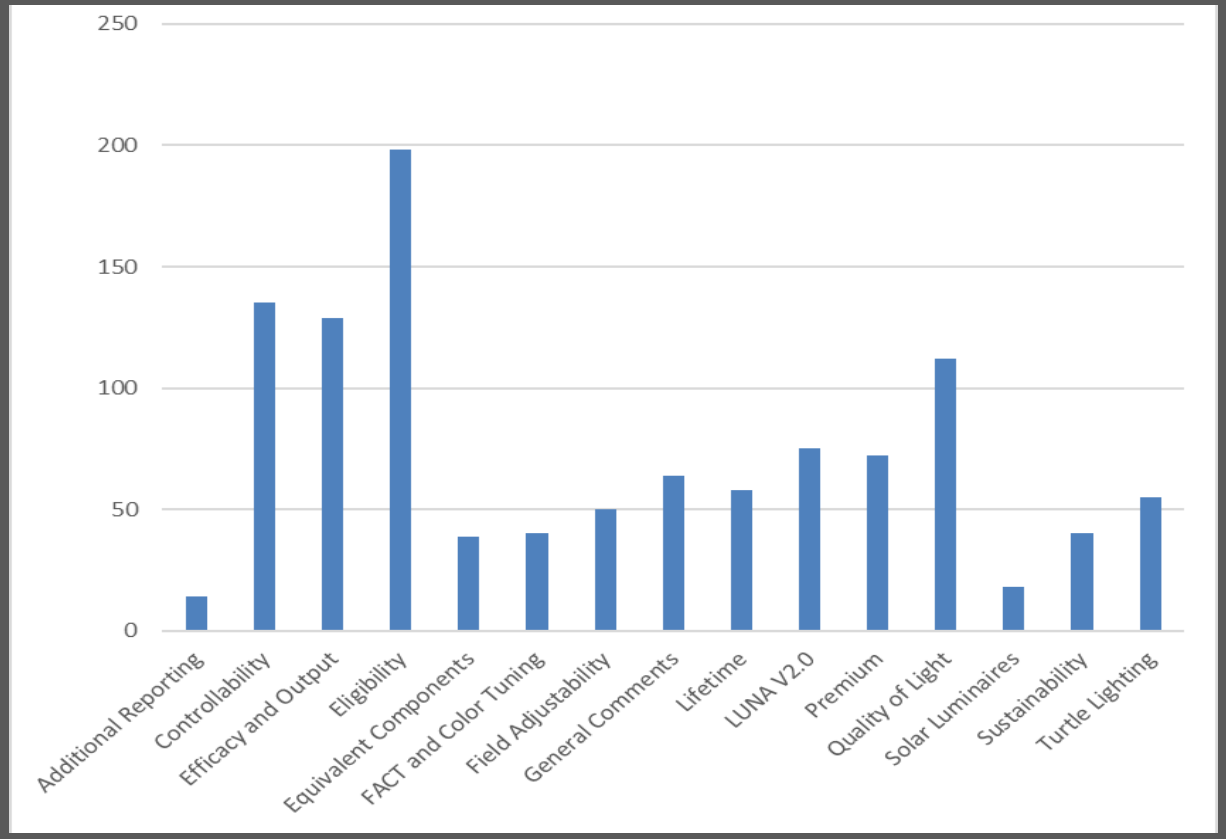
3:00	Introduction
3:10	Eligibility
3:15	Non-Performance Reporting
3:18	Efficacy
3:23	Quality of Light
3:28	Controllability& Field Adjustability
3:33	Premium
3:38	Solar Powered Luminaires
3:40	Sustainability
3:42	FACT & Color Tuning
3:44	Lifetime
3:47	LUNA V2.0
3:53	Equivalent Sourcing
3:55	Additional Reporting
3:57	Q & A
4:25	Review

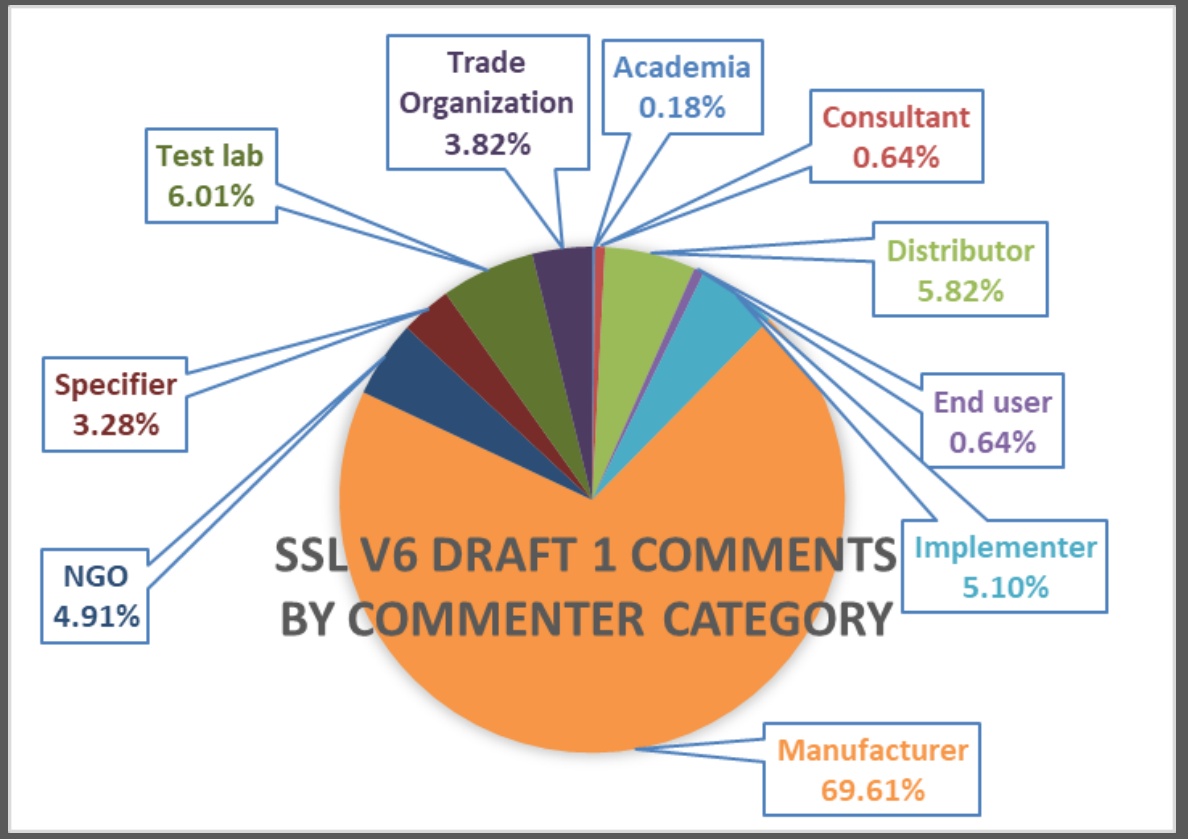
Thank you for being part of our consortium

DLC Stakeholder Input Process



Draft 1 Comment Breakdown

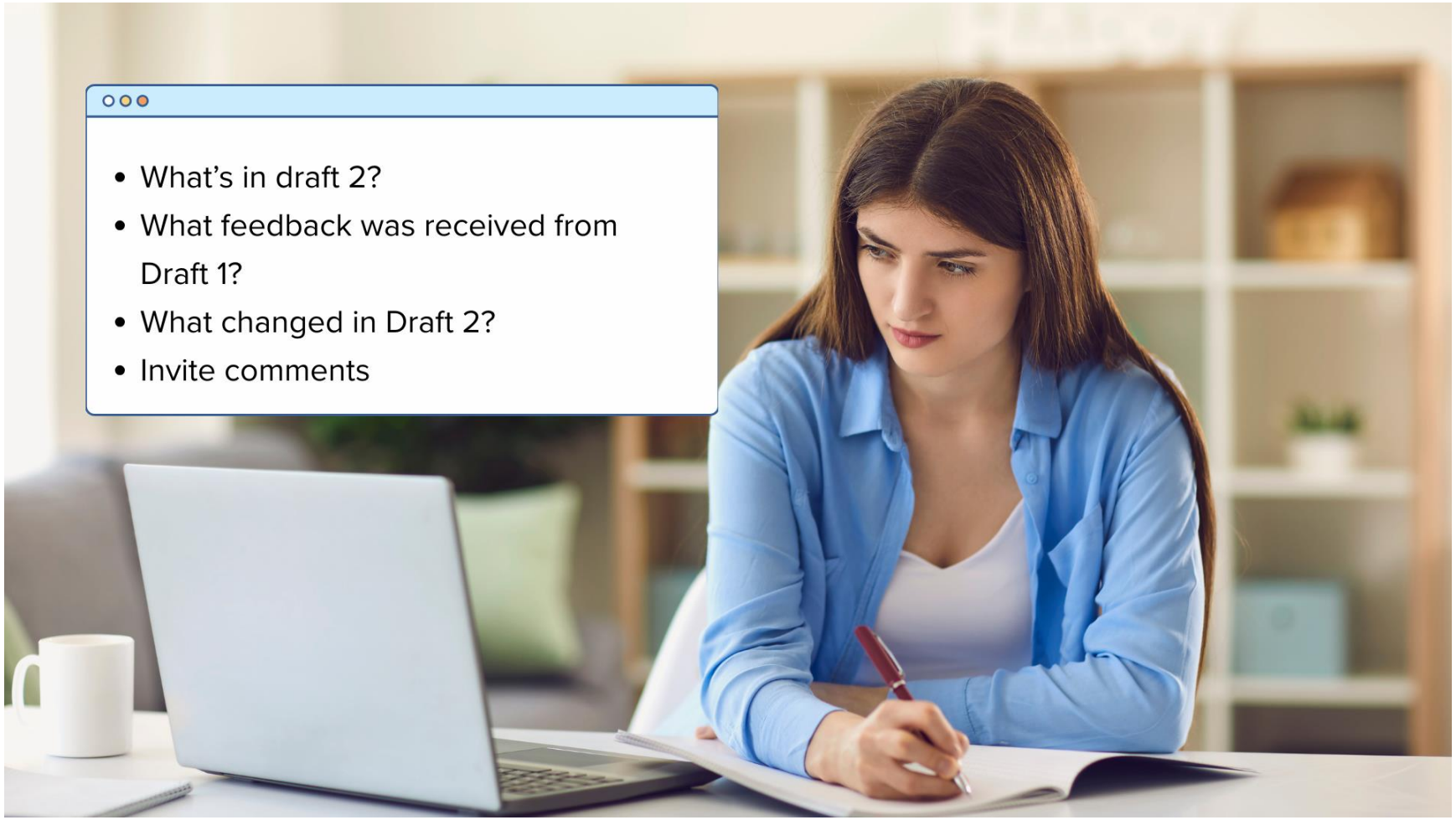




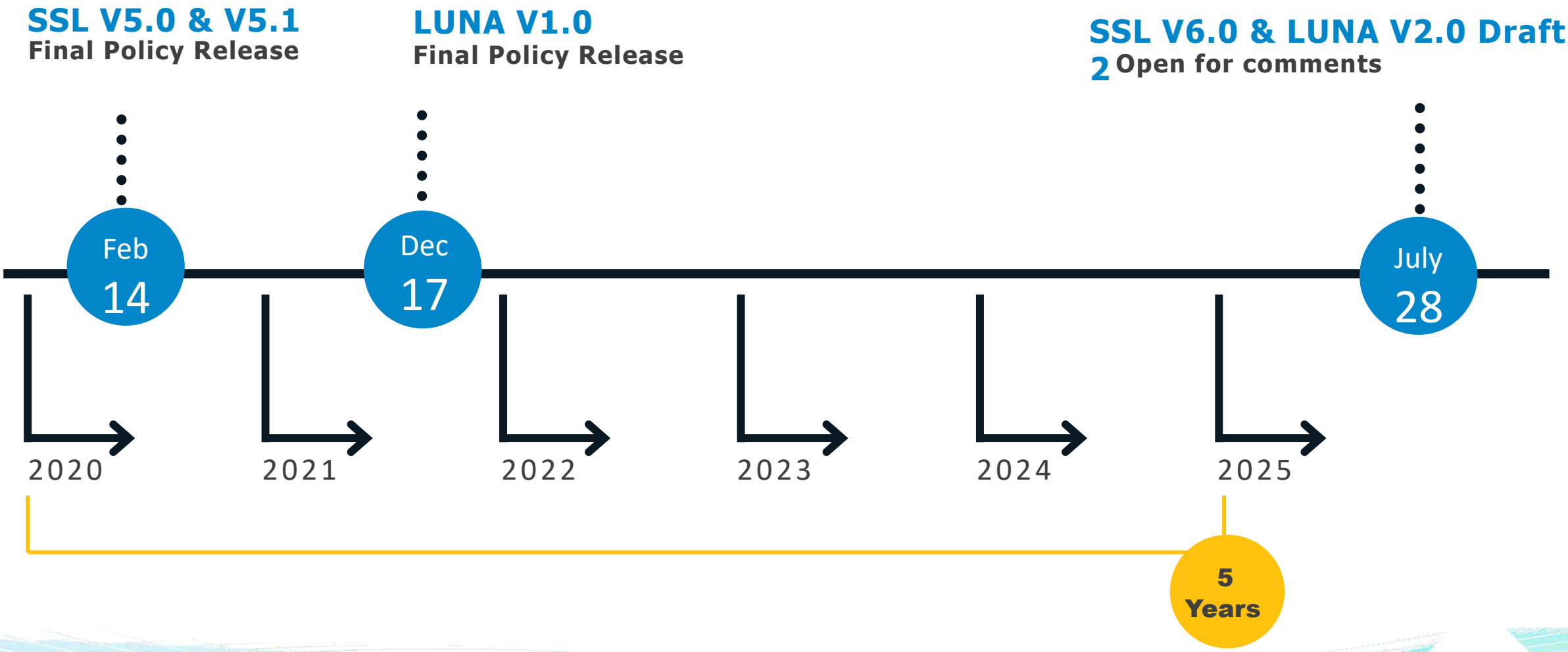
Over 1000 comments from 50 organizations – Thank you!

[Comment Summary]

Webinar Objectives



History: SSL & LUNA Technical Requirements



DLC Technical Requirements for LED Lighting: SSL V6.0 & LUNA V2.0 Goals

Advance energy efficiency and support decarbonization through increased efficacy thresholds and controls requirements.

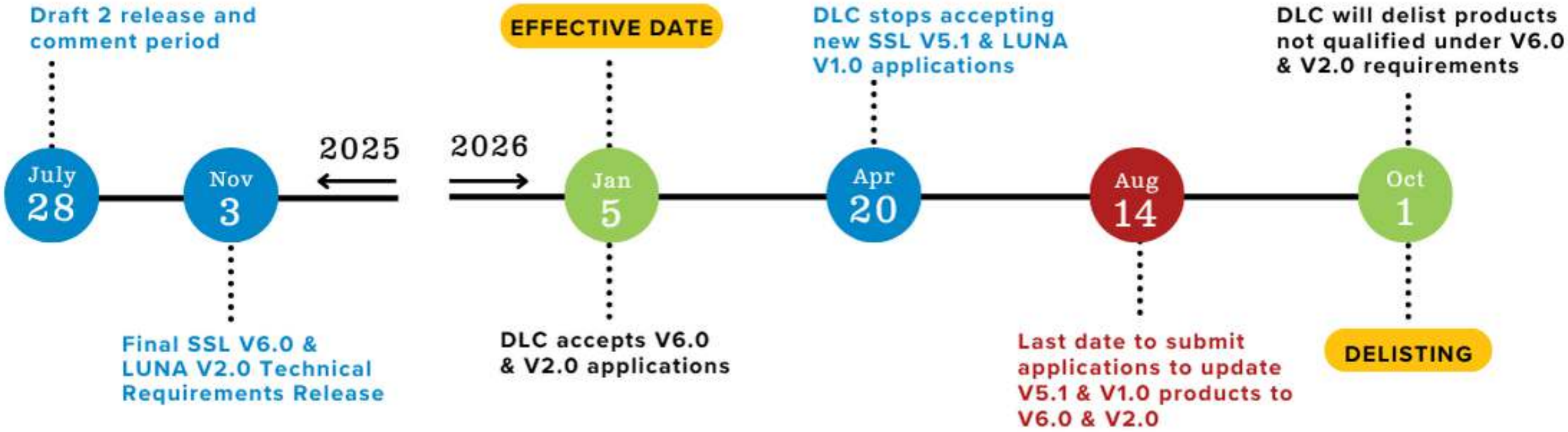
Strengthen the SSL QPL by expanding eligibility to support sustainability, lighting innovation, and flexible installation practices.

Drive greater adoption of controls through compatibility-based product selection from SSL and NLC QPLs.

Mitigate light pollution by creating more responsible outdoor lighting options.

Timeline

SSL V6.0 & LUNA V2.0 Timeline



SSL V6.0 & LUNA V2.0

Draft 2 Overview

15

Draft 2 Overview

DLC Technical Requirements for LED Lighting: SSL V6.0 & LUNA V2.0

Draft 2

Released for comment July 28, 2025

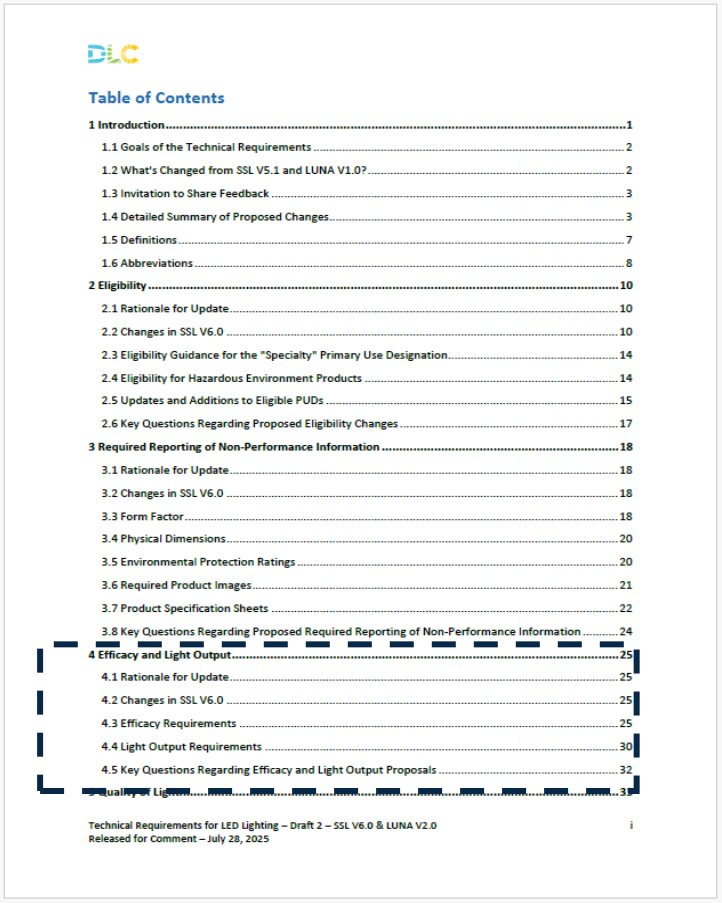
This version of the DLC Technical Requirements for LED Lighting contains proposed additions, revisions, corrections, and clarifications made to the V5.1 Technical Requirements, all standalone SSL Technical Requirement policies, and LUNA V1.0 Technical Requirements. The DLC encourages commenters to read this draft and welcomes all feedback.

Draft 2 is a comprehensive Technical Requirements document that proposes additions and revisions to the following:

- SSL V5.1 Technical Requirements
- LUNA V1.0 Technical Requirements
- All standalone SSL Technical Requirement policies (e.g. Technical Requirement Tables, Warranty, Lifetime, Testing constraints, Power quality and more)

Link: SSL V6.0 and LUNA V2.0 Draft 2

Draft 2 Overview



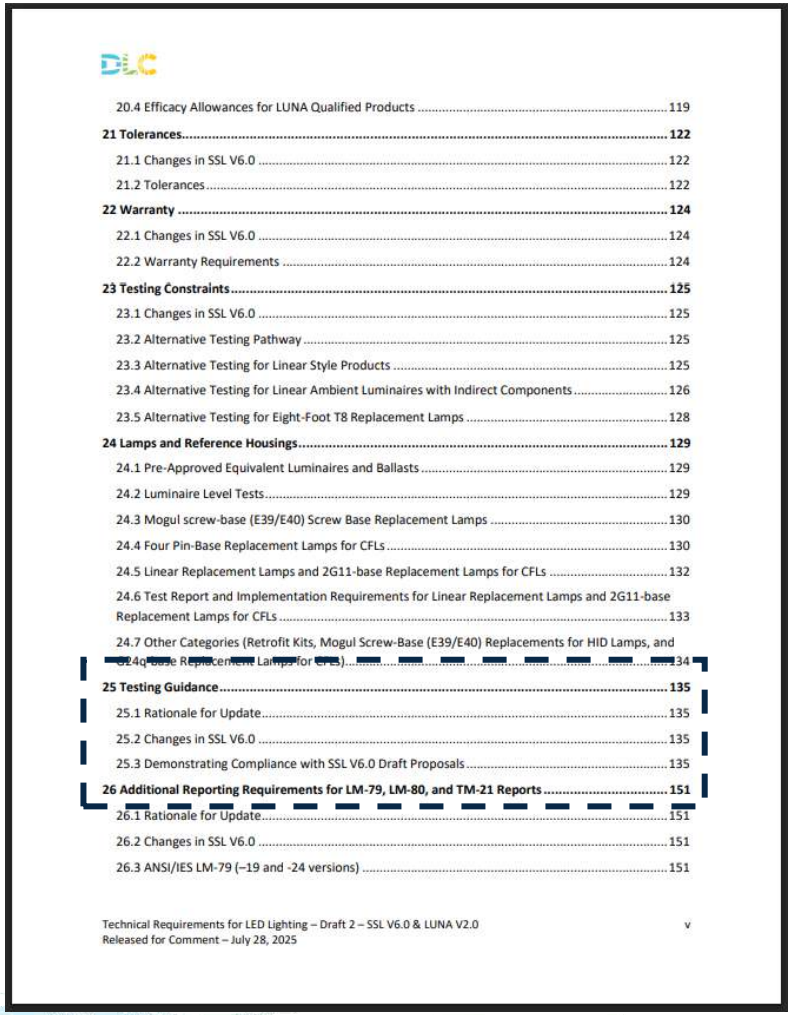
DLC

Table of Contents

Draft sections with new or proposed requirement changes include "**Rationale**", "**Changes in SSL V6.0**" **and/or** "**Key Questions**" subsections.

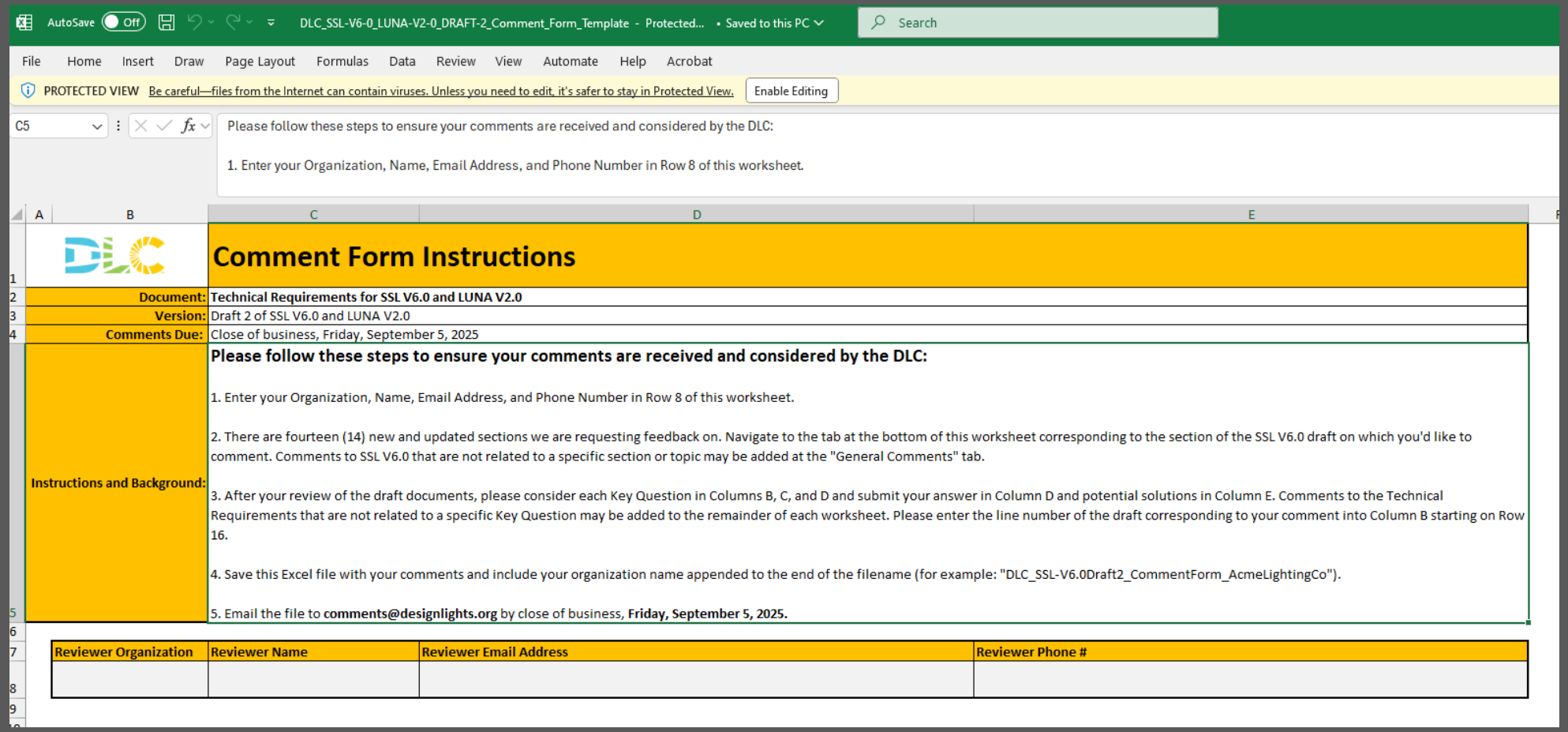
Table 1 provides a high-level summary of the proposed changes in draft 2.

Notable Policy Structural Change



Minimum **testing requirements** for **demonstrating compliance by topic** moved to a new **Testing Guidance** section

All feedback is considered and appreciated!



AutoSave Off | DLC_SSL-V6-0_LUNA-V2-0_DRAFT-2_Comment_Form_Template - Protected... • Saved to this PC | Search

File Home Insert Draw Page Layout Formulas Data Review View Automate Help Acrobat

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

C5 | Please follow these steps to ensure your comments are received and considered by the DLC:

1. Enter your Organization, Name, Email Address, and Phone Number in Row 8 of this worksheet.

Comment Form Instructions

Document:	**Technical Requirements for SSL V6.0 and LUNA V2.0**
Version:	Draft 2 of SSL V6.0 and LUNA V2.0
Comments Due:	Close of business, Friday, September 5, 2025
Instructions and Background:	**Please follow these steps to ensure your comments are received and considered by the DLC:** 1. Enter your Organization, Name, Email Address, and Phone Number in Row 8 of this worksheet. 2. There are fourteen (14) new and updated sections we are requesting feedback on. Navigate to the tab at the bottom of this worksheet corresponding to the section of the SSL V6.0 draft on which you'd like to comment. Comments to SSL V6.0 that are not related to a specific section or topic may be added at the "General Comments" tab. 3. After your review of the draft documents, please consider each Key Question in Columns B, C, and D and submit your answer in Column D and potential solutions in Column E. Comments to the Technical Requirements that are not related to a specific Key Question may be added to the remainder of each worksheet. Please enter the line number of the draft corresponding to your comment into Column B starting on Row 16. 4. Save this Excel file with your comments and include your organization name appended to the end of the filename (for example: "DLC_SSL-V6.0Draft2_CommentForm_AcmeLightingCo"). 5. Email the file to **comments@designlights.org** by close of business, **Friday, September 5, 2025.**

Reviewer Organization	Reviewer Name	Reviewer Email Address	Reviewer Phone #

Comments on this draft policy are **due September 5, 2025**, and should be emailed to comments@designlights.org using the comment form.

Draft 2:

Eligibility

20

Eligibility Overview

Goals

Support energy efficiency program needs with relevant product types

Requirement

We created PUDs to accurately reflect the market

Eligibility: Feedback and Changes

Page 10 for detailed changes

- Incentives would not support cost of listing ENERGY STAR lamps
  - ✓ **We removed from V6.0**
- Listing downlights would create confusion in the marketplace
  - ✓ **We removed from V6.0**

Eligibility: Feedback and Changes (continued)

Page 10 for detailed changes

- Support for LED replacements for HID lamps
  - ✓ **Medium (E26) & Mogul (E39/E40) screw-base replacement lamps added**
- Definitions of some new PUDs unclear
  - ✓ **Refined definitions of Amber PUDs**
  - ✓ **Created technical distinctions for Linear Ambient Strip**

No Change in Draft 2

NEW Primary Use Designations (PUDs) - Outdoor

Excerpts from Table 2

Category	General Application	Primary Use Designation (PUD)	Change Type
Outdoor	All Output Levels	Outdoor Zero-Uplight Wall-Mounted Luminaires	Terminology Change Cutoff → Zero-Uplight
Outdoor	All Output Levels	Outdoor Uplight-Emitting Wall-Mounted Luminaires	Terminology Change Semi-Cutoff → Uplight-Emitting
Outdoor	Low Output	Turtle Lighting Zero-Uplight Pole/Arm-Mounted Area and Roadway Luminaires	New PUD
Outdoor	Low Output	Turtle Lighting Zero-Uplight Wall-Mounted Area Luminaires	New PUD
Outdoor	Low Output	Turtle Lighting Zero-Uplight Bollards	New PUD
Outdoor	All Output Levels	Architectural Flood and Spot Luminaires	Combined with Landscape/Accent Flood and Spot Luminaires
Outdoor	All Output Levels	Hazardous Environment Area Luminaires	Converted Specialty
Outdoor	All Output Levels	**Sports Lighting**	Converted Specialty

No Change in Draft 2

NEW Solar Powered Outdoor Luminaire Category

Excerpts from Table 2

General Application	Primary Use Designations
Low Output	• Pole/Arm-Mounted Area and Roadway • Pole/Arm-Mounted Decorative • Zero-Uplight Wall-Mounted Area • Uplight-Emitting Wall-Mounted Area • Bollards • Fuel Pump Canopy • Architectural Flood and Spot Luminaires • Stairwell and Passageway • Sports Lighting • Hazardous Environment Area Luminaires • Turtle Lighting Zero-Uplight Wall-Mounted Area (Low Output Only) • Turtle Lighting Zero-Uplight Pole/Arm-Mounted Area and Roadway (Low Output Only) • Turtle Lighting Zero-Uplight Bollards • Specialty: _____
Mid Output	
High Output	
Very High Output	

- All requirements for products in the Outdoor category apply
- Additional required reported fields

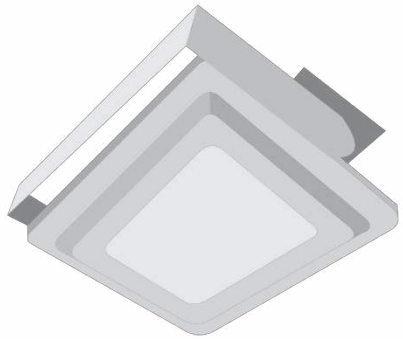
New Primary Use Designations (PUDs) - Indoor

Excerpts from Table 2

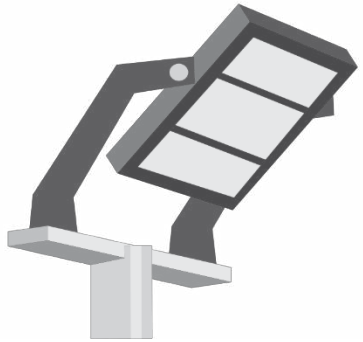
Category	General Application	Primary Use Designation (PUD)	Change Type
Indoor	Linear Ambient	Linear Ambient Strip Luminaires	New PUD
Indoor	High-Bay	Hazardous Environment High-Bay Luminaires	Converted Specialty
Indoor	High-Bay	Indirect High-Bay Luminaires	Converted Specialty
Indoor	Low-Bay	Hazardous Environment Low-Bay Luminaires	Converted Specialty

No Change in Draft 2

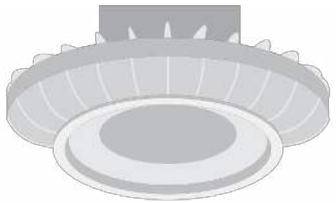
Converted Specialty PUDs



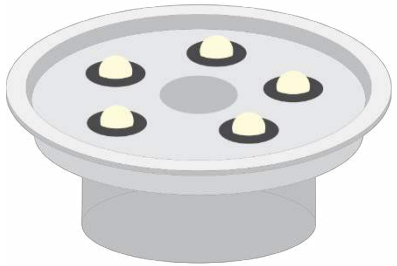
Hazardous Environment Area Luminaires



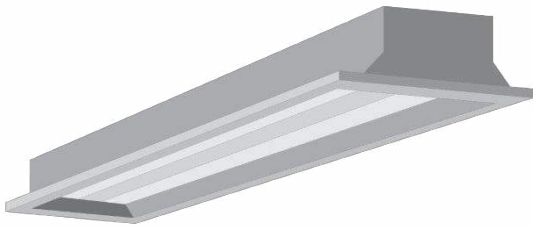
Sports Lighting



Hazardous Environment High-Bay



Indirect High-Bays



Hazardous Environment Low-Bay

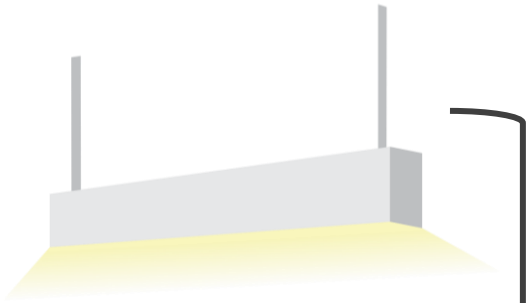
Converted Specialty PUDs – New Distribution Requirements in Draft 2

Excerpts from Table 13

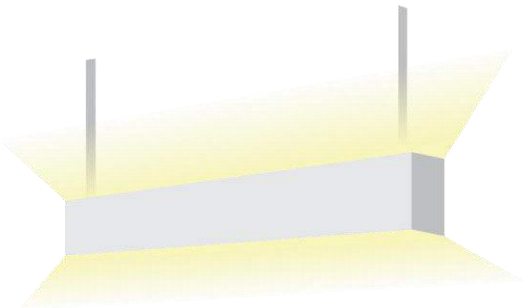
Primary Use Letter	Primary Use Designation	Minimum Light Output (lm)*	Zonal Lumens (ZL)/Spacing Criteria(SC)/Beam Angle (BA)*	ZL/SC/BA Nominal Requirement*	ZL/SC/BA Tolerance	ZLD/SC/BA Requirement with Tolerance
BA	Hazardous Environment Area Luminaires	1,000	ZL: 30-60º	≥40%	-10%	≥30%
			ZL: >90º	≥20%	+3%	≥23%
BB	Sports Lighting	1,000	ZL: 0-90º	100%	1%	≥99%
BD	Hazardous Environment High-Bay Luminaires	10,000	ZL: 20-50º	≥30%	-10%	≥20%
BE	Indirect High-Bay Luminaires	10,000	ZL: 90-180º	>90%	-3%	≥87%
BF	Hazardous Environment Low-Bay Luminaires	5,000	ZL: 20-50º	≥30%	-10%	≥20%

Changes in Draft 2

Differentiated Linear Ambient

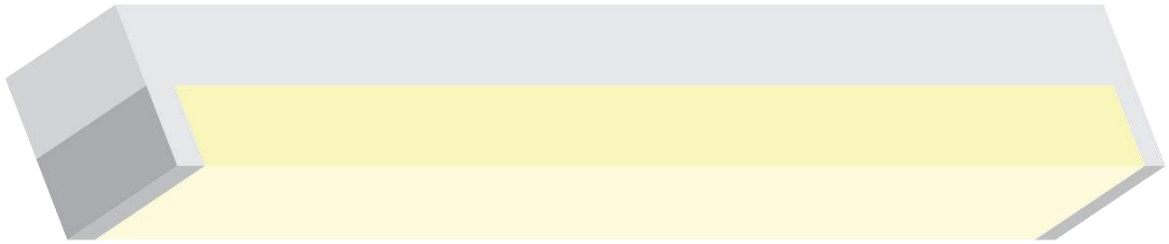


Direct Linear Ambient



Linear Ambient w/ Indirect Component

Cove lighting eligible



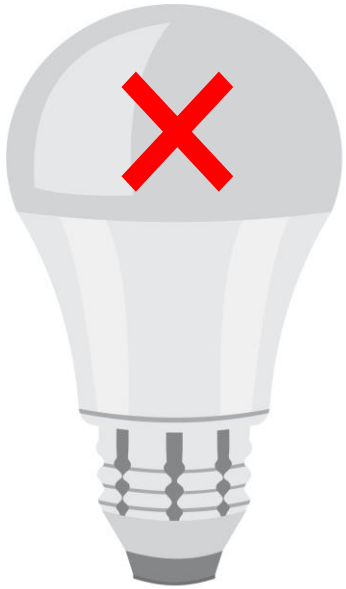
~~Direct Linear Strip~~
→ Linear Ambient Strip

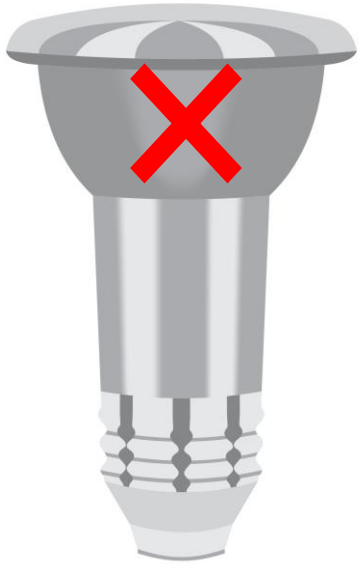
- No distribution requirements
- Maximum 6" width
- Cove lighting not eligible

Changed in Draft 2

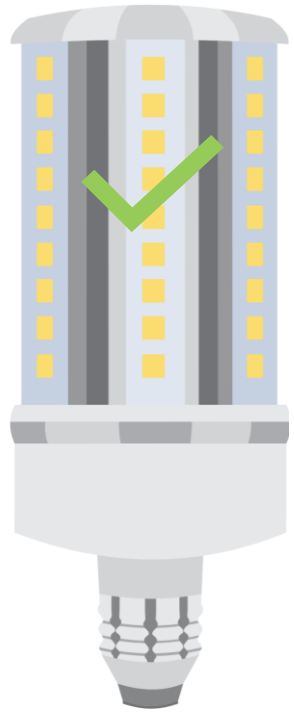
Adding Medium Screw-Base (E26) Lamps

✗ Lamps previously covered by ENERGY STAR (A, R, BR, etc.) are ineligible in Draft 2





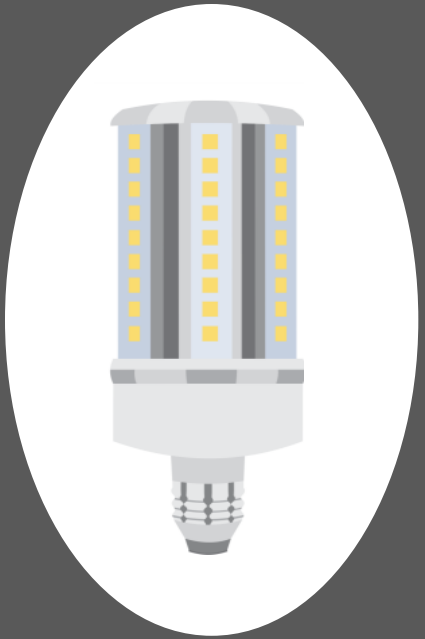
✓ Adding requirements for medium screw-base (E26) LED replacement lamps for HID



New HID Replacement Lamps

Excerpts from Table 2

#	Category	General Application	Primary Use Designation (PUD)
32	Mogul Screw-Base (E39/E40) Replacements for HID Lamps	Omnidirectional lamps	Omnidirectional Replacement Lamps (UL Type B)
33		Directional lamps	Directional Replacement Lamps (UL Type B)
34	Medium Screw-Base (E26) Replacements for HID Lamps	Omnidirectional Lamps	Omnidirectional Replacement Lamps (UL Type B)
35		Directional Lamps	Directional Replacement Lamps (UL Type B)



Downlights and Downlight Retrofit Kits

- **Ineligible in Draft 2**
- **DLC is monitoring the situation at ENERGY STAR**

Draft 2:

Non-Performance Reporting

33

Non-Performance Reporting Overview

Goals

The DLC needs to make it simple for incentive reviewers to determine if products are qualified and are being installed according to their intended end use

Requirement

We introduced non-performance reporting to improve the user experience of the QPL

Non-Performance Reporting: Changes from Feedback

Page 18 for detailed changes

- Required product images too burdensome
  - ✓ **Product images may now be photorealistic renderings**
- DLC-hosted spec sheet/Linked spec sheet not ideal
  - ✓ **We have clarified that either option may be used and can be updated anytime**

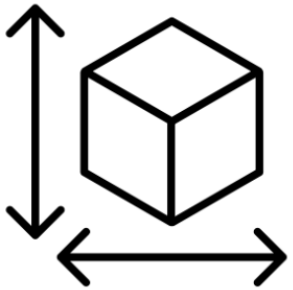
Non-Performance Reporting: Changes from Feedback (continued)

Page 18 for detailed changes

- Mounting options already on spec sheets
  - ✓ **We removed from V6.0**
- Environmental Protection Reporting options not comprehensive
  - ✓ **We added new reporting options**

Changed in Draft 2

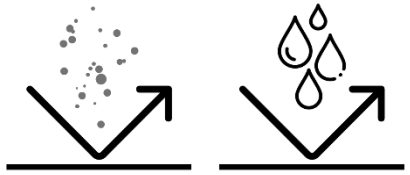
Non-Performance Reporting



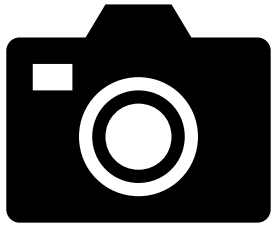
Dimensions

Form Factor
(Table 3)

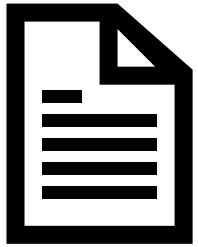
Mounting Options



Environmental Protection
(Table 4)



Product Images

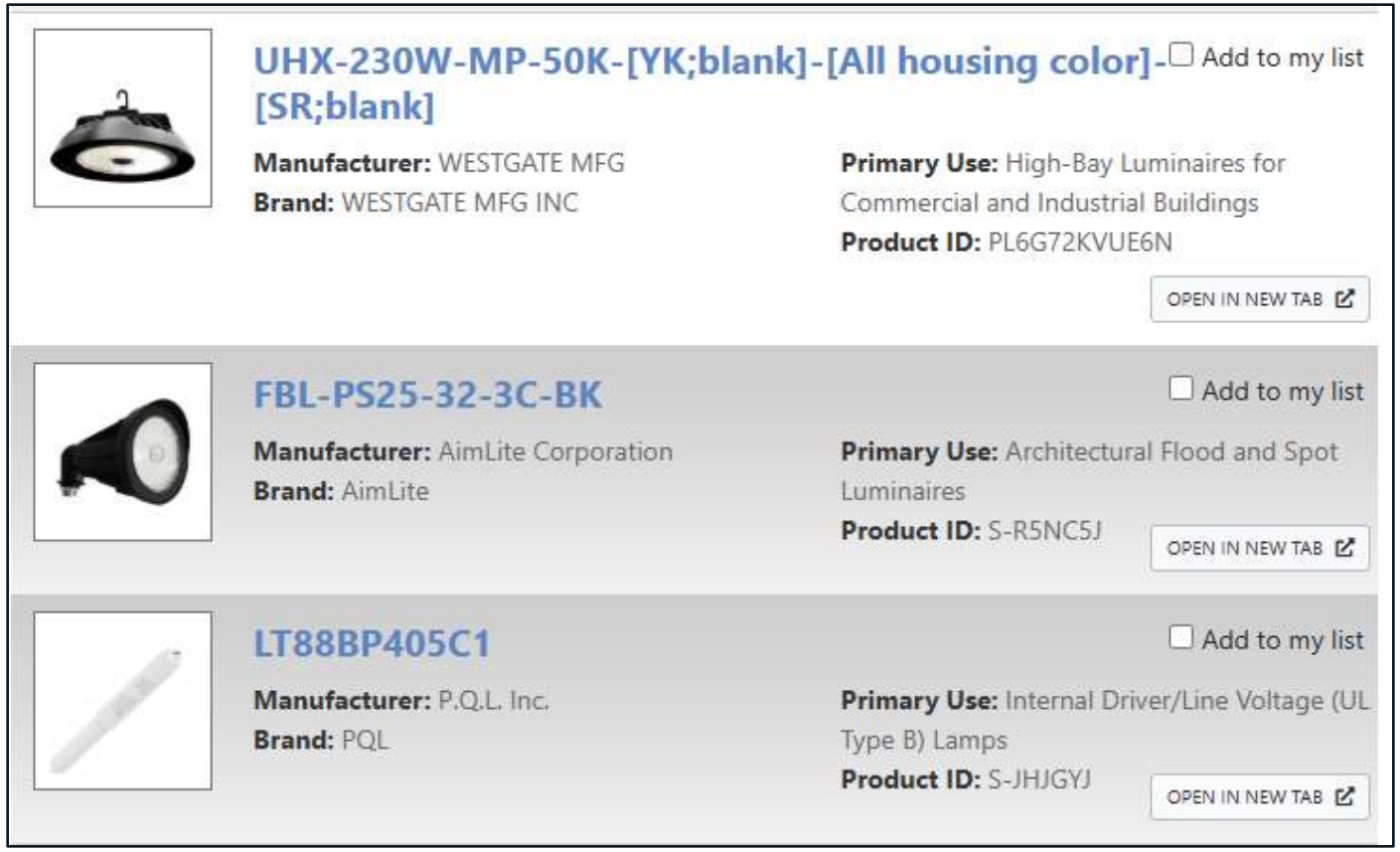


Spec Sheets

Changed in Draft 2

Product Images

- Required to submit
- May submit different images for each variation (not required)
- Photorealistic renderings allowed



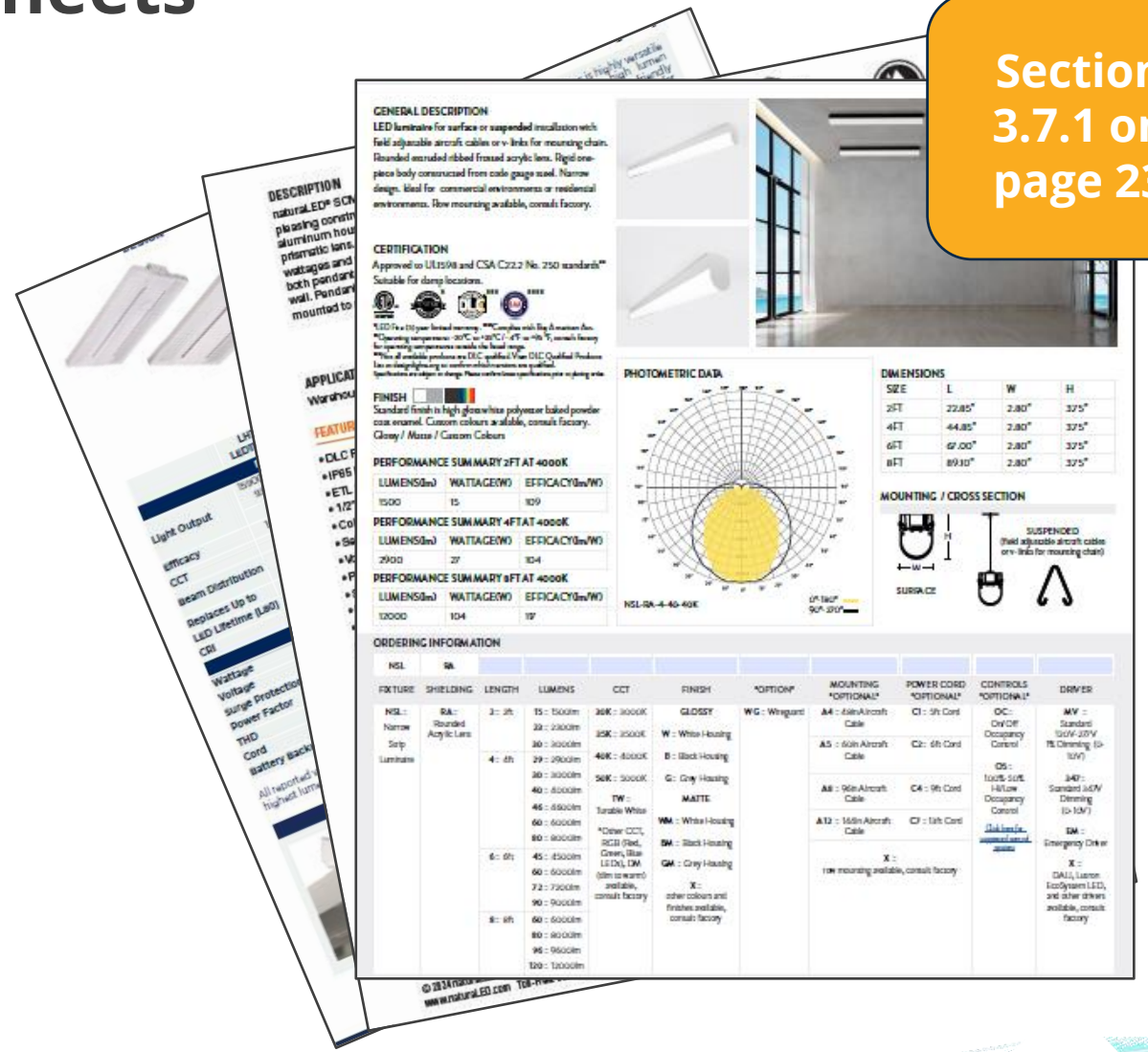
Clarification: Specification Sheets

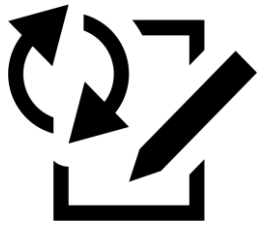
No Change in Draft 2

Section 3.7.1 on page 23

Manufacturers have two options:

- DLC-hosted
- Link to manufacturer site





Can update at any time

Draft 2:

Efficacy and Output

40

Efficacy Overview and Goals

Goals

Continue to save energy by setting thresholds that keep pace with technological advancements, ensuring that DLC represents the most efficient products on the market

Requirement

Propose to increase standard efficacy (lm/W) thresholds by an average of 14% (range of 4%-19%)

Efficacy: Feedback and Changes

Page 36 for detailed changes

- Efficacy thresholds are too high, especially for outdoor
  - ✓ **Some outdoor and lamp thresholds were lowered**
- Splitting outdoor thresholds by PUD introduces additional complexity
  - ✓ **Outdoor thresholds were simplified to two levels**
- Bare-lamp thresholds should be used for Mogul-base lamps
  - ✓ **A new option to report Mogul-base lamps as bare-lamp was introduced**
  - ✓ **Medium-base replacement lamps were introduced with bare-lamp thresholds**

Changed in Draft 2

Standard Efficacy Thresholds: Indoor

Excerpts from Table 5

Category	General Application	V5.1 Threshold (lm/W)	V6.0 Threshold (lm/W)
Indoor Luminaires and Retrofit Kits	Troffer	110	120
	Linear Ambient	115	125
	High Bay	120	140 (135 for hazardous)
	Low Bay	115	130 (125 for hazardous)
	Case Lighting	95	110
	Interior Directional	80	95

Standard Efficacy Thresholds: Outdoor

Changed in Draft 2

Excerpts from Table 5

Category	PUD	V5.1 Threshold (lm/W)	V6.0 Threshold (lm/W)
Outdoor Luminaires and Retrofit Kits	Pole/Arm-Mounted Area and Roadway	105	125
	Pole/Arm-Mounted Decorative		115
	Outdoor Zero-Uplight Wall-Mounted Area		125
	Outdoor Uplight-Emitting Wall-Mounted Area		125
	Bollards		115
	Parking Garage		115
	Fuel Pump Canopy		125
	Architectural Flood and Spot Luminaires		125
	Stairwell and Passageway		125
	Sports Lighting		115
	Hazardous Environment Area		115

Standard Efficacy Thresholds: Lamps

Changed in Draft 2

Table 6

Category		General Application	V5.1 Threshold (lm/W)	V6.0 Threshold (lm/W)
In Luminaire	Mogul-Base (E39/E40) Replacement Lamp	Outdoor	105	115
		High-Bay	120	140
		Low-Bay	115	130
Bare Lamp	Mogul-Base (E39/E40) Replacement Lamp	Omnidirectional	N/A	150
		Directional	N/A	145
	Medium-Base (E26) Replacement Lamp	Omnidirectional	N/A	130
		Directional	N/A	130
	Linear Replacement Lamp	All	120	130
	Four Pin-Base Lamps	Vertically and Horizontally Mounted	85	95
		2G11 Base	120	125

No Change in Draft 2

Efficacy Thresholds by Amber LED Technology

Table 7

Amber LED Technology	Minimum efficacy Threshold (lm/W)
de-Amber	30
pc-Amber	70
Filtered-Amber	95

No Change in Draft 2

Efficacy Allowances for Low CCT Products

Excerpts from Table 33

Performance Metric	Allowance
CCT ≤ 2700 K	8%
CCT ≤ 2200 K	10%
CCT ≤ 2000 K	20%
CCT ≤ 1800 K	25%

Cumulative total allowance of up to 15%, except for 2000K and 1800K products, which may have a cumulative total allowance of up to 25%

Changed in Draft 2

Efficacy Allowances for Color Rendition and UGR

Excerpts from Table 33

Performance Metric		Allowance
High Color Rendition		5% or 10%
Discomfort Glare		10%
Troffer	UGR < 16	
Linear Ambient	UGR < 16	
Low Bay	UGR < 19	
High Bay	UGR < 22	

Cumulative total allowance of up to 15%, except for 2000K and 1800K products, which may have a cumulative total allowance of up to 25%

No Change in Draft 2

Premium Efficacy Thresholds

Goals

Differentiate **the most energy efficient products** to enhance energy savings

Requirement

20 lm/W above standard thresholds (allowances apply)

Changed in Draft 2

Output Thresholds: V5.1 vs V6.0

Excerpts from Table 8 and 9

Category	General Application	V5.1 Minimum Output (lm)	V6.0 Minimum Output (lm)
Outdoor Luminaires	Low Output	250	150
Mogul-Base (E39/E40) Replacement Lamp	Omnidirectional	N/A	2000
	Directional	N/A	2000
Medium-Base (E26) Replacement Lamp	Omnidirectional	N/A	1000
	Directional	N/A	2000

Draft 2:

Quality of Light

51

Quality of Light V6 Goals

Goals

Support lighting characteristics that improve the visual environment and mitigate light pollution

Requirement

- Introduce NWL options and max CCT limits
- Introduce standardized color maintenance reporting options

Quality of Light: Feedback and Changes

Pages 33-47 for details

- Required testing should be flexible
  - ✓ Removed 3000 K outdoor distribution testing restriction
- Too soon for required TM-35 reporting
  - ✓ TM-35 reporting is now optional
- Non-white options shouldn't be restricted to LUNA for outdoor
  - ✓ NWL options eligible for all standard outdoor listing pathways

Quality of Light – Non-white light (NWL) options

Changed in Draft 2

Details in Table 10 & Section 2.5.3

Indoor and outdoor products may also include the following options:

1) 1800 K and 2000 K
2) Direct emission (de-) Amber
3) Phosphor converted (pc-) Amber
4) Filtered Amber

No longer restricted to LUNA for outdoor listings

NWL options must report color rendition and color maintenance values, but no thresholds are proposed

Changed in Draft 2

Quality of Light – Chromaticity

Metric and/or Application	Applicable Products	SSL V6.0 & LUNA V2.0 Draft 2 Standard Requirements	QPL Listing	Method of Measurement/ Evaluation
Chromaticity (CCT & D_{uv})	Chromaticity consistent with at least one of the basic, flexible, or extended, nominal 7-step quadrangle CCTs detailed below:		CCT and Duv for parent products from LM-79 test reports listed as Tested Data. Nominal CCT for child products listed as Reported Data.	ANSI/IES LM-79 *ANSI C78.377-2024*
	All indoor products	1800 K – 6500 K		
	All outdoor products, exceptions below	**1800 K – 5000 K**		
	Sports Lighting and Fuel Pump Canopy	**1800 K – 5700 K**		
	Non-Amber LUNA outdoor products	**1800 K** - 3000 K		

Excerpt from Table 10

Changed in Draft 2

Quality of Light – Chromaticity

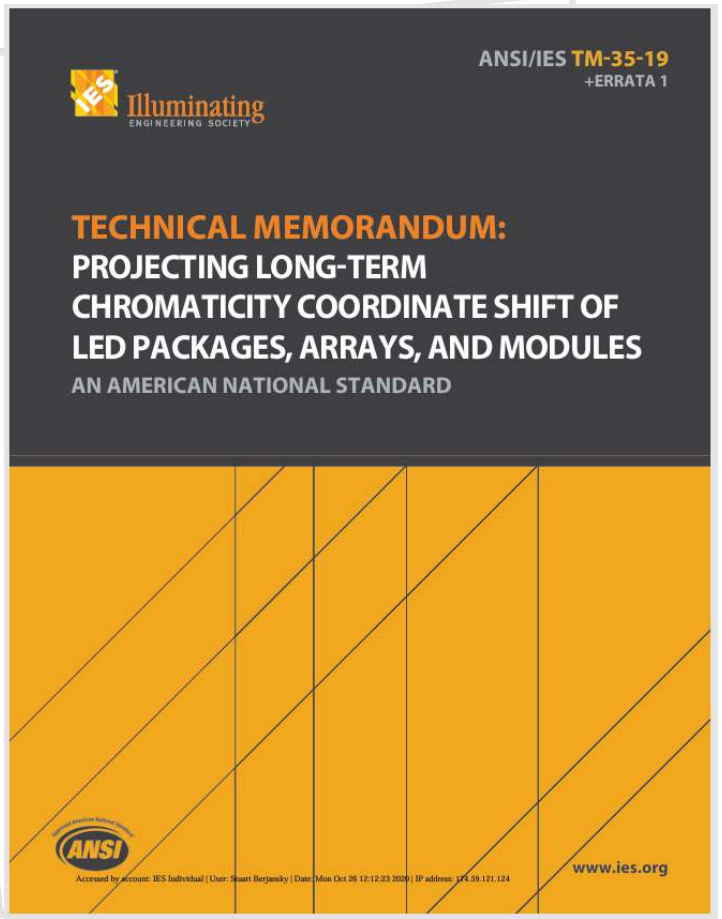
Metric and/or Application	Applicable Products	SSL V6.0 & LUNA V2.0 Draft 2 Standard Requirements	QPL Listing	Method of Measurement/ Evaluation
Chromaticity (Spectral Compliance Information)	All Amber Products	Chromaticity consistent with technology specific definitions proposed in the Amber LED Luminaires, Retrofit Kits, and Lamps section	Nomenclature for parent and child products. Parent products will also display: .SPDX document and SPD plot, dominant wavelength, and chromaticity coordinates	ANSI/IES LM-79 ANSI/IES TM-27 .spdx

Excerpt from Table 10

Quality of Light – Color Maintenance

Changed in Draft 2

Details in Table 10



V6 maintains existing color maintenance requirements and Draft 2 proposes **optional reporting** of CS4 and CS7 values per ANSI/IES TM-35-19.

No thresholds are proposed.

Draft 2:

Controllability

58

Controllability Overview

Goals

Enable EE Programs to offer more incentives for controls by providing simplified information on controls variations within Product IDs

Requirement

Submit controls options tables for all products to assign Controls Categories

Controllability: Feedback and Changes

Pages 49-66 for detailed changes

- The Controls Categories & Controls Options Tables are too complicated
  - ✓ **Simplified Controls Categories and Controls Options Tables reporting**
- Dimming is not required for all applications
  - ✓ **Removed requirement for all products to dim. Maintaining dimming capability requirements from V5.1**

Controllability: Feedback and Changes (continued)

Pages 49-66 for detailed changes

- Some Controls Options Table Available Options Missing/Extraneous
  - ✓ **Added available options to list where appropriate**
- Controls Ready Receptacles sometimes mounted on side of luminaires
  - ✓ **Added 'or Side' to Controls Ready Receptacle reporting options**

Changed in Draft 2

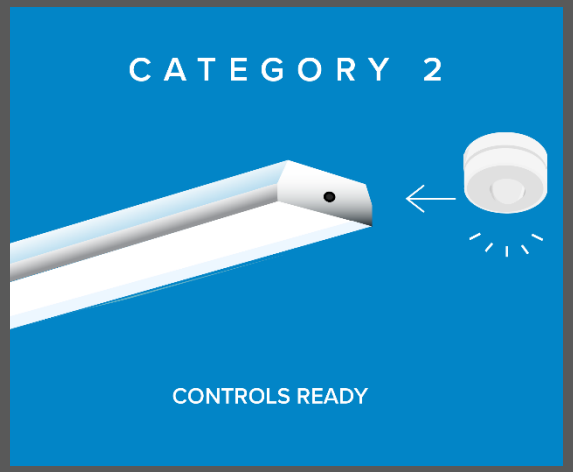
Controls Categories

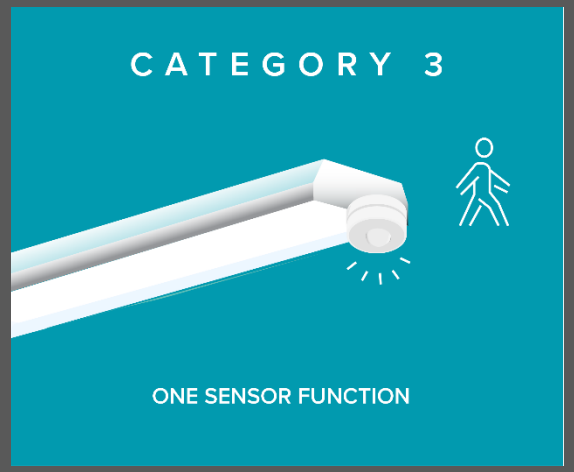
Table 14

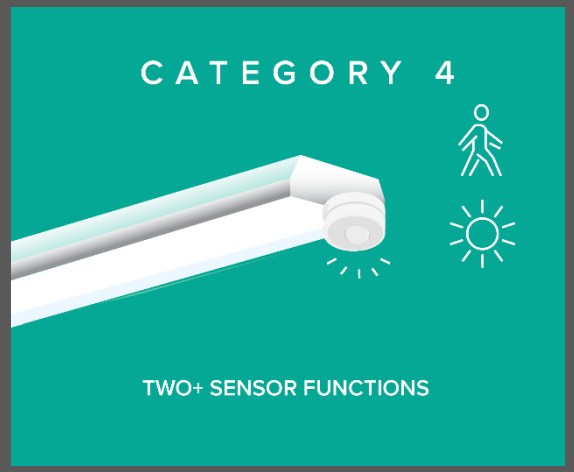
Category	Name	Notes
1	No Integral Controls	
2	Controls Ready Product	Integral Receptacle
3	Product with One Integral Sensor Function	Non-Networked
4	Product with Two or More Integral Sensor Functions	Non-Networked
5	Product with Networked Controller	NLC QPL Listed
6	Product with Networked Controller and Two or More Integral Sensor Functions (LLLC)	NLC QPL Listed

Changed in Draft 2

Controls Categories







Changed in Draft 2

Controls Options Tables

Collected at Application Level

- 1 Controls Options Table -> Multiple Product IDs

Table 16

ALL PRODUCTS											
1	2	3	4	5	6	7	8	9	10	11	12
Controls Option Code	Driver Type / Communication Method	Dimming Capability	Min. Dimming Level	Integral Controller Type / Communication Method	Controls Ready Top or Side Receptacle Type	Controls Ready Bottom or Side Receptacle Type	Integral Sensor Function	Integral Sensor Technology	Integral Sensor Max Mounting Height (ft)	NLC Product ID	Controls Ready Accessory Model Numbers (optional)

New in Draft 2

Updated in Draft 2

Draft 2:

Field Adjustable Products

65

Field Adjustable Overview

Goals

Better align with industry practice and encourage use of lower light output and CCTs.

Requirement

Submit information for three FA Types: FALO (light output), FACT (color temp), FALD (light distribution)

Field Adjustable: Feedback and Changes

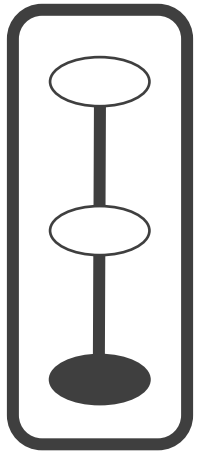
Pages 67-73 for detailed changes

- FALO ship at lowest setting burdensome and unnecessary
  - ✓ Removed lowest FALO shipping requirement. Kept reporting of ship (default) setting.
- FACT ship at lowest CCT burdensome and unnecessary
  - ✓ Removed requirement for indoor luminaires.
  - ✓ Kept requirement for outdoor luminaires.
- Label requirements are burdensome
  - ✓ Neither Draft 1 or Draft 2 contain labeling requirements for field adjustable attributes.

Changed in Draft 2

Field Adjustable Light Output (FALO)

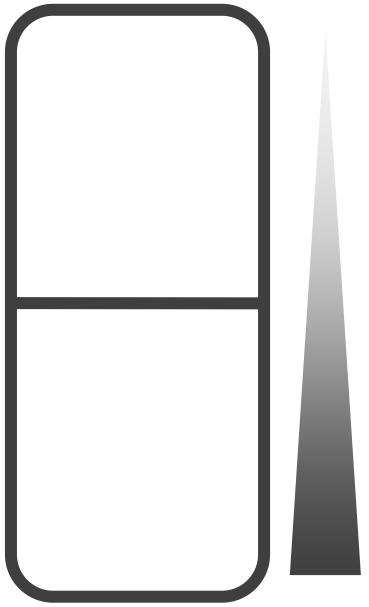
Splitting Field Adjustable Light Output from dimming



Lumen Output/Wattage

Propose that manufacturers **report** the default light output and wattage settings

Field Adjustable Light Output

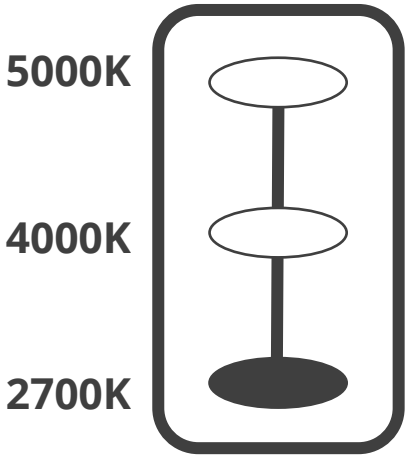


Dimming

Changed in Draft 2

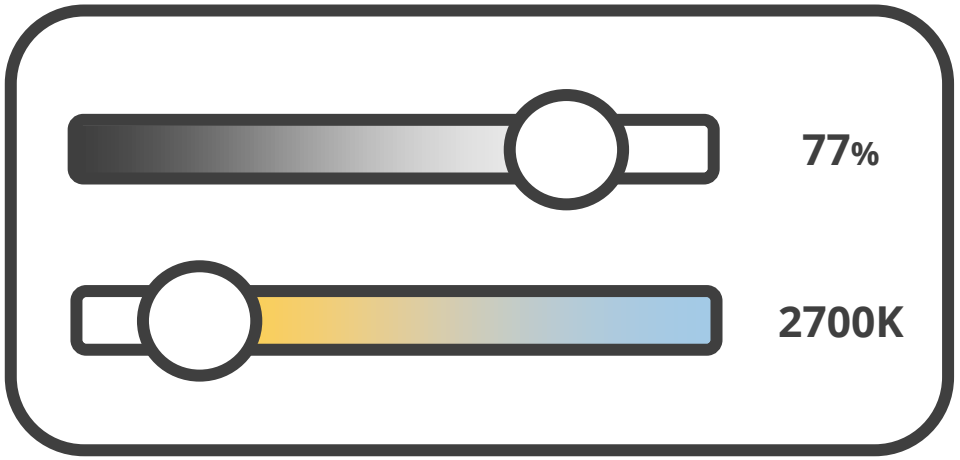
Field Adjustable Correlated Color Temperature (FACT)

Splitting FACT from CCT Tunable



Color Temperature

Propose that **Outdoor** products ship at lowest CCT setting



CCT Tunable

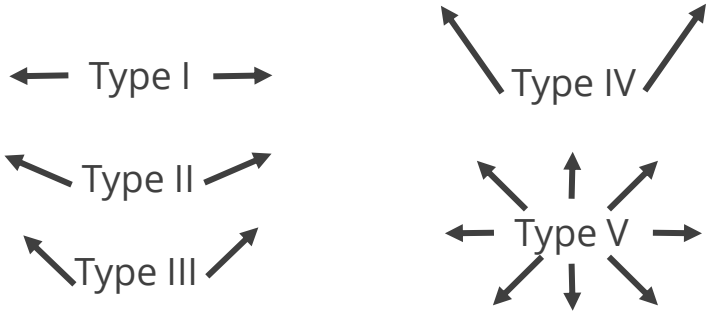
No Change in Draft 2

Field Adjustable Light Distribution (FALD)

Field Adjustable Light Distribution

- Display
  - Type
  - Range
    - Indoor: degrees
    - Outdoor: IES + NEMA Distribution Types

Propose that manufacturers **report** default setting



IES Distribution Types

Beam Spread (deg)	NEMA Type	Description
10-18	1	Very Narrow
18-29	2	Narrow
29-46	3	Medium Narrow
46-70	4	Medium
70-100	5	Medium Wide
100-130	6	Wide
130+	7	Very Wide

Draft 2:

Premium

71

Overview of Premium in SSL V6.0

Improve the value of V6.0 Premium listings for members **by enhancing controls, efficacy and lifetime requirements**

Premium: Feedback and Changes

Page 86 for detailed changes

- Do not require digital drivers
  - ✓ **Removed from V6.0**
- Increase the driver lifetime requirement
  - ✓ **Longer driver lifetime proposed**

Draft 2 Premium Efficacy

No Change in Draft 2

Details in Table 26

Goal

Differentiate **the most energy efficient products** to enhance energy savings

Premium Requirement

+20 lumens per watt over V6 Standard efficacy requirements

DLC LISTED PREMIUM™

Draft 2 Premium Controllability

Changed in Draft 2

Details in Table 26

Goal

Greater **energy savings & better integration** with control systems

Premium Requirement

- Continuous dimming to 10% or lower
- Controls categories 2, 5, and 6 only

DLC LISTED PREMIUM™

Draft 2 Premium Discomfort Glare

No Change in Draft 2

Details in Table 26

Goal

Support **glare mitigation** while understanding metric trade-offs

Premium Requirement

Troffers maintain UGR thresholds from V5.1

Draft 2 Premium Chromaticity

No Change in Draft 2

Details in Table 26

Goal

Increased **uniformity** of installed lighting

Premium Requirement

Stricter limits on variation within color temperature bins (3000 K, 4000 K, etc.)

NWL options are not eligible for Premium

Draft 2 Premium Lumen Maintenance

No Change in Draft 2

Details in Table 26

Goal

Extend product lifetime and therefore savings from initial investment

Premium Requirement

L90 ≥ 36,000 hours
(Standard L70 ≥ 50,000 hours)

Draft 2 Premium Driver Lifetime

Changed in Draft 2

Details in Table 26

Goal

Extend product lifetime and therefore savings from initial investment

Premium Requirement

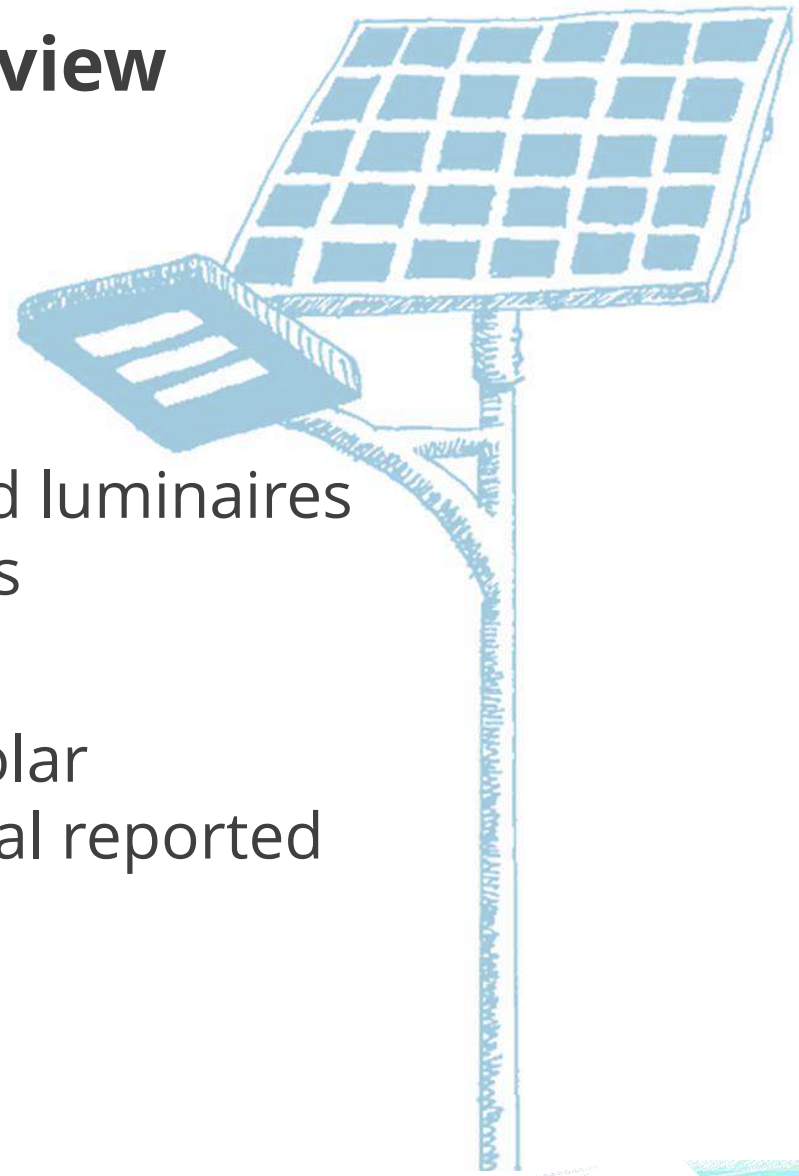
Driver lifetime ≥ 100,000 hours
(Standard driver lifetime ≥ 50,000 hours)

Draft 2:

Solar Powered Outdoor Luminaires

80

Solar Powered Outdoor Luminaires Overview



Goals

Support adoption of solar powered luminaires and reporting of key characteristics

Requirement

Introduce Category for Outdoor Solar Powered Luminaires with additional reported characteristics

Solar Powered Luminaires: Feedback and Changes

Page 95 for detailed changes

- General support for a Solar Powered Luminaire Category
  - ✓ **Minimal changes to language were made**

Additional Reporting for Solar Powered Luminaires

Changed in Draft 2

Excerpts from Table 27

Reported Field	Options
Configuration	Integrated 
	 Split-Type
	Luminaire Only 
Grid Connection	Off Grid
	Hybrid
Battery Type	$LiFePO_4$
	Lead Acid
	NIMH
	NMC
	Lead Crystal®

Other Reported Values

- PV Wattage
- Recommended Install Height
- Battery Capacity
- Battery Lifetime
- Solar Panel Lifetime

Draft 2:

Sustainability

84

Sustainability Overview and Goals

Goals

Promote lighting sustainability efforts and encourage lifecycle reporting

Requirement

Optional reporting of third party verified certifications

Sustainability: Feedback and Changes

Page 86 for detailed changes

- Suggestion to whittle down list for simplification
  - ✓ **Six certifications were removed and one added**
- Comments about accurately representing specific certifications
  - ✓ **Adjustments were made as necessary**
- Keeping track of documents and expiration dates is burdensome
  - ✓ **More detail around reporting expiration dates and updating documentation was added**

Changed in Draft 2

Optionally Reported Certifications

EPD®
THE INTERNATIONAL EPD® SYSTEM

TÜVRheinland® CERTIFIED
Green Product
www.tuv.com
ID 0100000000

Declare.

RoHS

GREENGUARD
PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS
UL.COM/GG
UL 2818

CERTIFIED CM
cradle to cradle

lighting for good

SSL V6 Webinar Series: Sustainability and Resilience

Wednesday,
August 27th,
2pm EDT

Sustainability & Resilience in Lighting

88

Draft 2:

Color Tunable Products

89

No Change in Draft 2

Draft 2 Color Tunable

Goals

Better support incentives for color tunable products and industry changes in product designs

Requirement

- Add eligibility for full-color tunable products
- Rename "white tunable" to "CCT tunable"

Draft 2:

Lumen Maintenance & Driver Lifetime

91

Changed in Draft 2

Lumen Maintenance & Driver Lifetime Goals

Goals

Extend product lifetime to support utility needs to ensure savings from initial investment and reduce maintenance costs

Requirement

- Maintain lumen maintenance thresholds
- Implement new and/or extended driver lifetime requirements for all listings

Lifetime: Feedback and Changes

Pages 78-80 for details

- Increase premium driver lifetime requirement
  - ✓ **Driver lifetime requirement increased for Premium**
- Do not increase testing burden
  - ✓ **Key question regarding in-house/benchtop thermal testing**

Changed in Draft 2

Lumen Maintenance & Driver Lifetime

Table 24

Metric	Applicable Product(s)	DLC Standard	DLC Premium	Method of Evaluation
Lumen Maintenance	All 2200 K – 6500 K products	L_{70} ≥ 50,000 hours	(In addition to L_{70}) L90 ≥ 36,000 hours	LM-80/TM-21 ISTMT/LM-98-24 report OR LM-84/TM-28
	All NWL products	L_{70} ≥ 36,000 hours	*Not eligible*	
Driver Lifetime	All products	≥ 50,000 hours	≥ 100,000 hours	Driver spec sheet Driver ISTMT

LUNA V2.0

95

LUNA: A dark sky solution that leverages SSL Requirements

LUNA V2.0 Draft 2: Eligibility

Changed in Draft 2

Details in Table 29 and 30

Goals

Support adoption of high-quality, energy-efficient lighting that mitigates light pollution

Requirement

Expand product eligibility to allow bare lamps; retrofit kits, NWL and FACT products.

LUNA V2.0: Feedback and Changes

Page 95 for detailed changes

- Increase maximum light output for Turtle Lighting products
  - ✓ **Increased maximum light output for some products**
- Add S/P Ratio reporting to improve understanding of sky glow impacts
  - ✓ **Added S/P Ratio reporting for tested parent products**
- Simplify lamp testing requirements
  - ✓ **Medium and Mogul screw-base lamps are eligible (bare-lamp tested)**

LUNA V2 Draft 2 lamp requirements (New)

Details in Table 29

Excerpt from Table 29

Table 29: PUDs eligible for LUNA V2.0 qualification and respective U Rating thresholds

Primary Use Letter	Primary Use Designations (PUDs) Eligible for LUNA Qualification	Maximum U Rating Threshold	Maximum Light Output (lumens)
BJ	Omnidirectional Mogul Screw-Base Replacements for HID Lamps (Type B)	N/A	10,000 (bare lamp)
BK	Directional Mogul Screw-Base Replacements for HID Lamps (UL Type B)	N/A	10,000 (bare lamp)
BL	Omnidirectional Medium Screw-Base Replacements for HID Lamps (UL Type B)	N/A	10,000 (bare lamp)
BM	Directional Medium Screw-Base Replacements for HID Lamps (UL Type B)	N/A	10,000 (bare lamp)

LUNA V2.0 Draft 2: Spectral Quality

Changed in Draft 2

Details in Tables 30 and Section 25.3.3

Goals

Support adoption of high-quality, energy-efficient lighting that mitigates light pollution

Requirement

Simplify and clarify color test requirements to minimize additional burden

LUNA V2 Draft 2 spectral requirements

Changed in Draft 2

Details in Table 30

Excerpt from Table 30

Metric and/or Application	Applicable Products	LUNA V2.0 Spectral Quality Requirements	QPL Listing	Method of Measurement/ Evaluation
Chromaticity (CCT & D_{uv})	Non-Amber LUNA products (luminaires, replacement lamps, and retrofit kits)	LUNA products shall exhibit chromaticity consistent with at least one of the basic, flexible, or extended, nominal 7-step quadrangle CCTs from 1800 K - 3000 K.	.SPDX data †, S/P ratio, CCT and D_{uv} for parent products listed as Tested Data. Nominal CCT for child products listed as Reported Data.	ANSI/IES LM-79 ANSI/IES TM-27-20 or IES TM-27-14 S/P Ratio calculated per the 2-degree scotopic and photopic luminous efficiency functions in ANSI/IES LS-02-20.
Chromaticity (Spectral Compliance Information)	LUNA Amber products (luminaires, lamps, and retrofit kits	Chromaticity consistent with technology-specific definitions proposed in the Amber LED Luminaires, Retrofit Kits, and Lamps section	Nomenclature for **Amber LED Luminaires, Retrofit Kits, and Lamps** (de-Amber, pc-Amber, filtered-Amber) for parent and child products. LUNA Amber parents will also display: .SPDX document, as well as the S/P ratio, % blue, traffic color compliance, and	ANSI/IES LM-79 ANSI/IES TM-27-20 or IES TM-27-14

LUNA V2.0 Draft 2: Turtle Lighting Luminaires

Changed in Draft 2

Details in Table 31

Goals

Support adoption of high-quality, turtle lighting products

Requirement

Turtle Lighting PUDs have de-Amber LEDs, zero uplight, and thresholds for maximum light output and high-angle light.

LUNA V2 Draft 2 Turtle Lighting

Changed in Draft 2

Details Table 31

Table 31: Turtle Lighting PUD Requirements: Light Output and Distribution

Primary Use Letter	Primary Use Designation	Maximum Light Output (lm)	Amber LED type	Maximum U Rating	Maximum G Rating
BG	Turtle Lighting Zero-Uplight Pole/Arm-Mounted Area and Roadway Luminaires	8000	de-Amber	U0	G1
BH	Turtle Lighting Zero-Uplight Wall-mounted Area Luminaires	2500	de-Amber	U0	G0
BI	Turtle Lighting Zero-Uplight Bollards	1000	de-Amber	U0	G0

Draft 2:

Alternatively Sourced Equivalent Components

104

No Change in Draft 2

What you see on the QPL is what you get

Qualified Product(s)

Alternate LEDs

Alternate Drivers

Alternate LEDs and drivers must perform within existing performance tolerances and provide subcomponent data to validate alternates meet DLC lifetime thresholds

Equivalent Components: Feedback and Changes

Pages 115-116 for details

- Do not require additional LM-79 testing
  - ✓ **No additional LM-79s required, worst-case testing still required**
- Additional subcomponent testing too burdensome
  - ✓ **Added key question regarding in-house/benchtop testing**

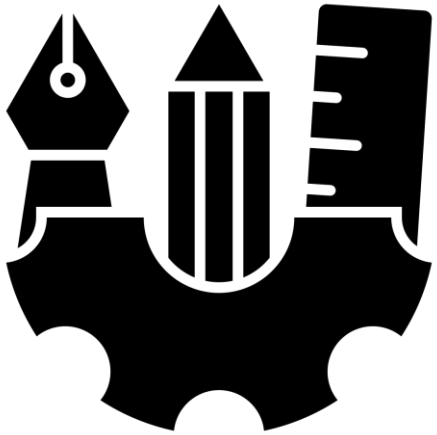
Draft 2:

Additional Reporting

107

Changed in Draft 2

Additional Reporting



Supporting revised IES standards

No longer allowing LM-79-08

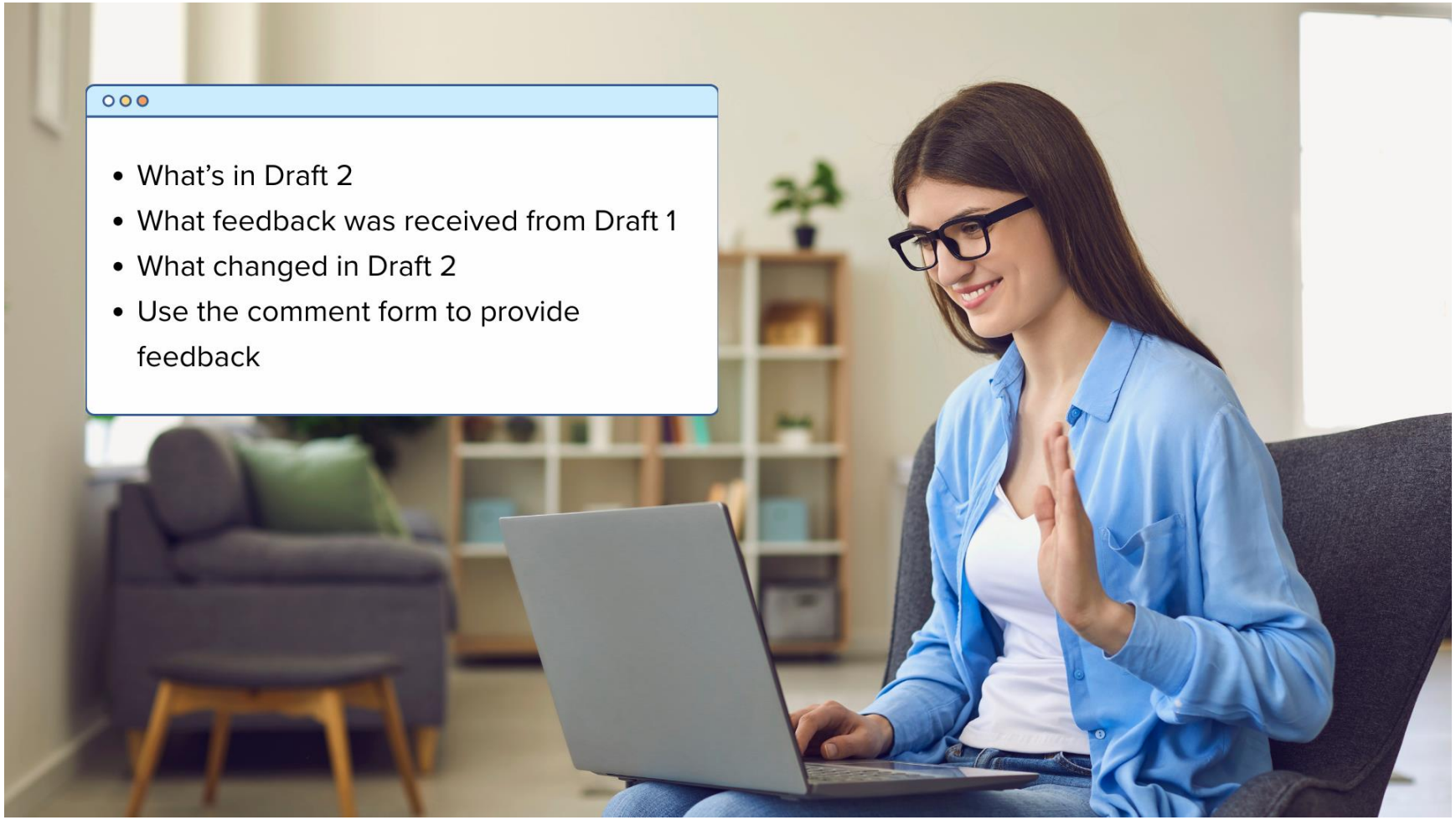
All LM-79 test reports must be PDFs

Add'l Reporting: Feedback and Changes

Pages 151- 156 for details

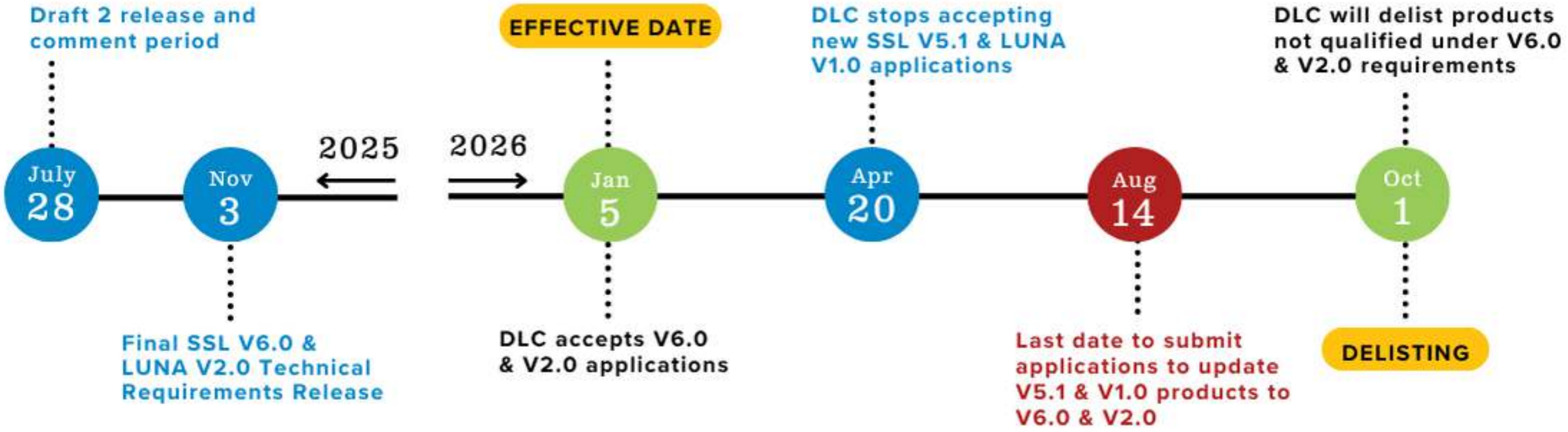
- Do not require retesting to new version alone
  - ✓ **No retesting required, if products already meet other thresholds**
- LM-79 image requirement too strict
  - ✓ **Relaxed LM-79 image requirement**

Webinar review



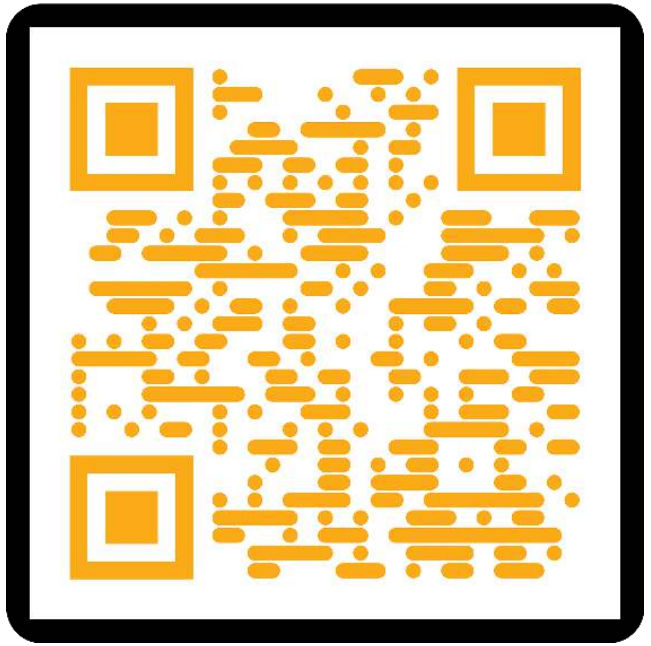
Q&A

SSL V6.0 & LUNA V2.0 Timeline

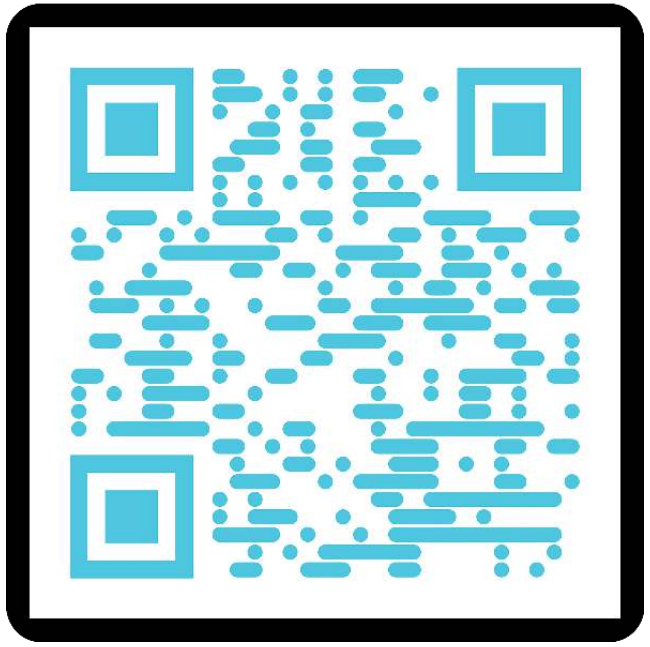


Past Draft 1 webinars in the SSL V6.0 Series

Amber/LUNA Webinar



Controls Webinar



Some information in these webinars may have been updated after Draft 1

Thank you for attending the SSL V6.0 & LUNA V2.0 Draft Release Webinar!

V6.0 and V2.0

August 13th

Trade Ally Network (Members Only)

August 20th

SSL QPL Updates

August 27th

Sustainability & Resilience in Lighting

Topic: Feedback and Changes

Page # for detailed changes

- Add 1-4 bullets describing most commonly received feedback AT A VERY HIGH LEVEL
  - Add sub-bullets under common feedback when a change was made in response to the feedback received, VERY HIGH LEVEL CHANGE, NOT IN THE WEEDS

SPEAK TO THE CHANGE AND USE AS MINIMAL LANGUAGE DESCRIBING KEY POINTS IN BULLETS, NO MORE THAN ONE LINE. See following slide for examples

Spectral Quality: Feedback and Changes

- Testing burden associated with multiple metrics is too high
  - **Removed** optional reporting and testing for **Angular Color Uniformity**
  - **Removed** required reporting and testing for **Consistency (of Chromaticity)**
- Some applications need specific requirements
  - Proposed **specific requirements for outdoor and high-bay** lighting
- Tiering, Allowances, and Premium and their interactions are not clearly explained
  - **Eliminated proposed tiers** from Standard qualification
  - Proposed **efficacy allowances** for meeting more preferential color rendition thresholds
  - Proposed **stricter** color maintenance and binning **requirements for Premium qualification**
- Uncertainty and lack of consensus around circadian metrics
  - Removed any considerations not specifically related to color quality, i.e. **circadian considerations removed**

Spectral Quality: Feedback and Changes

- The testing burden is too high
  - **Removed Angular Color Uniformity details**
  - **Removed Consistency (of Chromaticity) details**
- Some applications need specific requirements
  - **Proposed specific requirements for outdoor & high-bay lighting**
- Tiering, Allowances, and Premium and their interactions are not clear
  - **Eliminated tiers**
  - **Proposed clearer efficacy allowances**
  - **Proposed stricter requirements for Premium**
- Uncertainty and lack of consensus around circadian metrics
  - **Circadian considerations removed**

Generic Section Heading