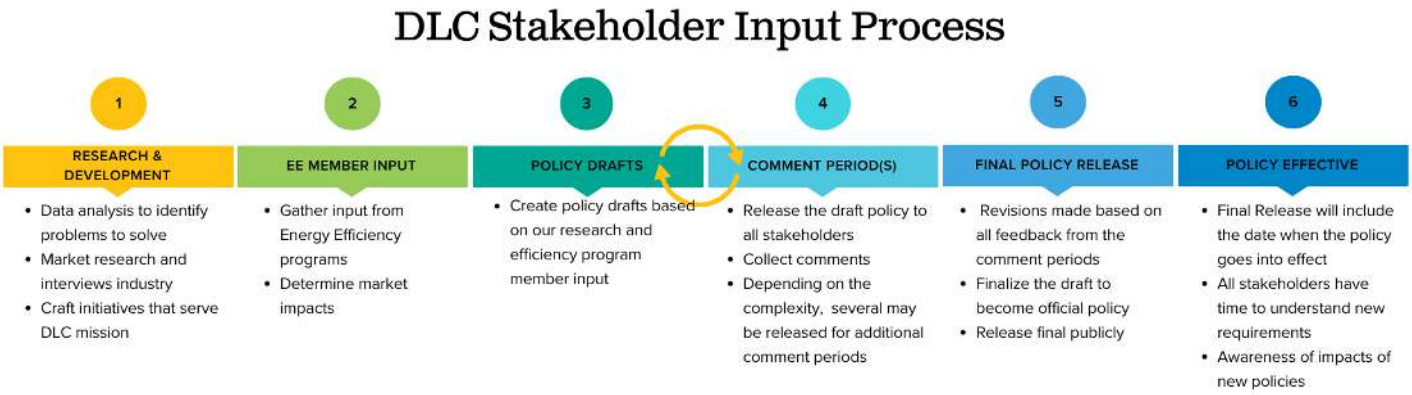
SSL V6.0, Draft 1 Comment Summary

The DesignLights Consortium (DLC) appreciates every stakeholder who participated in the stakeholder input process and provided comments on Draft 1 of the Solid-State Lighting (SSL) Technical Requirements Version 6.0 and LUNA V2.0. The DLC read, cataloged, and considered every comment submitted during the comment period.

This comment summary is offered as a courtesy for DLC commenters and other stakeholders and is shared as a demonstration of our commitment to transparency and integrity. While not every comment will be reflected in the final policy, comments provided help us better understand the multiple perspectives of the lighting industry and stakeholder community.

This document is an anonymized, paraphrased summary of all comments submitted during this round of comments on Draft 1. It is organized by topic area, listing general comments received, and followed by key questions and responses organized by agreement or disagreement with the proposed policy section. This document does not contain the DLC's responses, thoughts, or analysis on the comments.

If you believe your comments are not reflected or misconstrued, please reach out to info@designlights.org with corrections or clarifications.



Overview

1099 comments from 50 organizations were received on Draft 1. A breakdown of comments by topic is shown in Figure 1 and Figure 2.

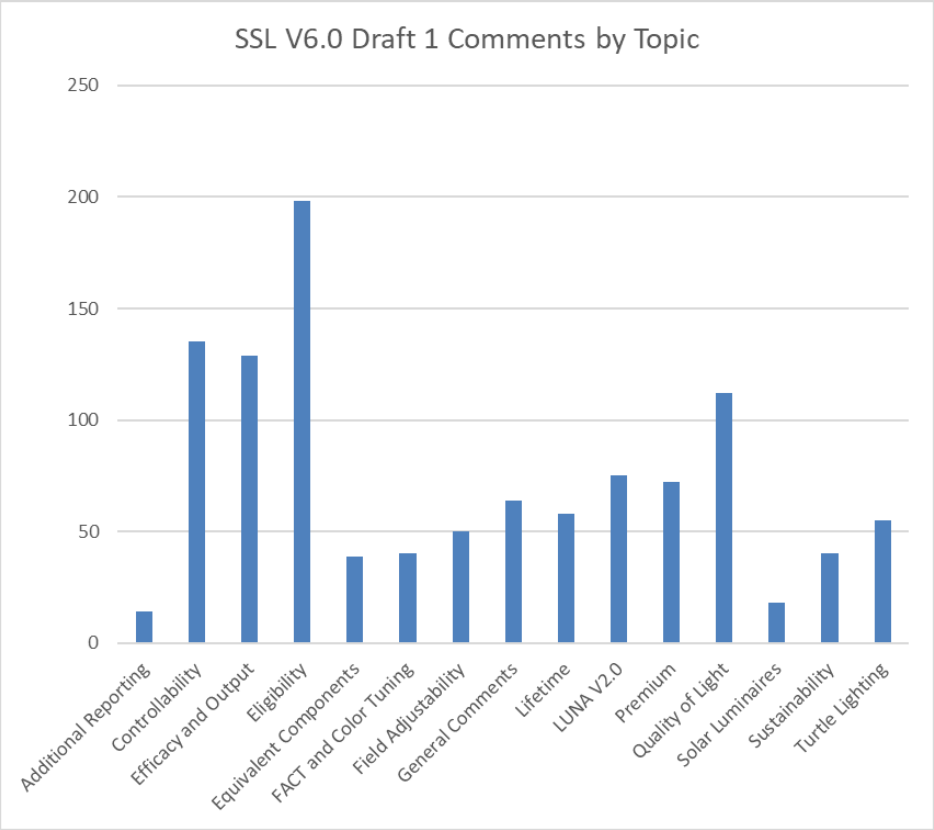


Figure 1 – SSL V6.0 Draft 1 Comments by Topic

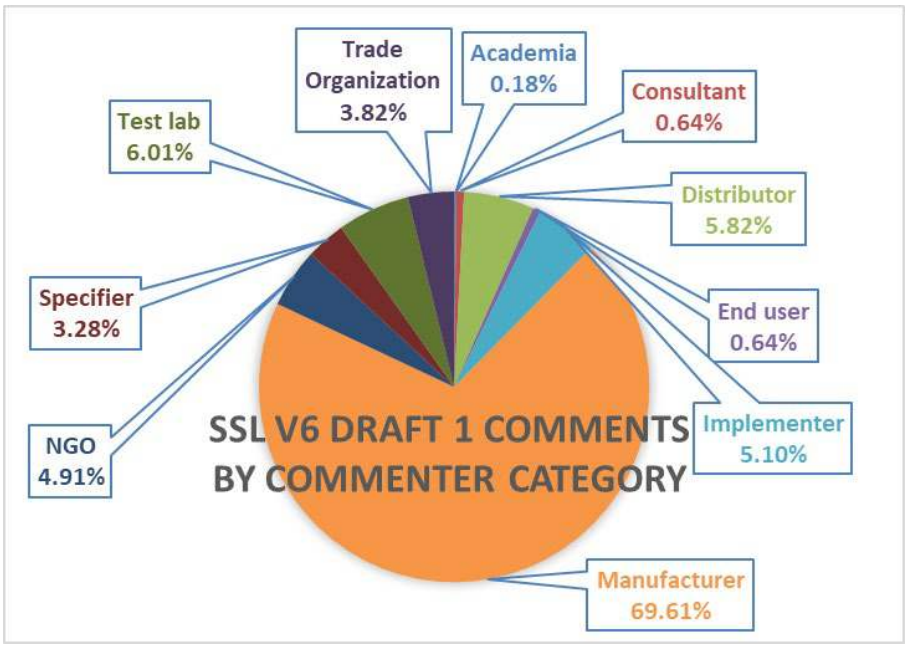


Figure 2 – SSL V6.0 Draft 1 Comments by Commenter Category

Eligibility

- **General comments –** no comments

Key Question 1: *What feedback, if any, do you have regarding the proposed requirement that all SSL V6.0 and LUNA V2.0 qualified products (Standard, Premium, and LUNA) be qualified with a product image and a public-facing specification sheet? Are there any changes needed to better support industry standard file types or style guidelines?*

Responses:

- Many commenters oppose mandatory images/spec sheets, citing significant burden to manufacturers, especially across many listings.
- Concerns that images/specs can become outdated or misrepresent product configurations not marketed to the public.
- Request for keeping product images optional, and allowing flexible links to manufacturer-hosted spec sheets.
- Some recommend accepting either photos or photorealistic renderings, not mandating professional photography.
- Specifiers and utility programs support the proposal as they benefit from visuals to verify eligibility.

Key Question 2: *What feedback do you have on the DLC's proposal to cover LED commercial integral downlights and downlight retrofit kits in SSL Version 6.0? What considerations should DLC take into account? Should the DLC use ENERGY STAR®'s test methods and metrics?*

Responses:

- Agree with the proposal
    - Some utilities and EE advocates support adding commercial downlights and related categories to maintain certification infrastructure post-ENERGY STAR.
    - A few propose using ENERGY STAR metrics with tougher DLC thresholds for commercial-grade use.
    - Some support adding products like commercial downlights if ENERGY STAR is retired, urging use of ENERGY STAR metrics and transfer of legacy listings without retesting.
- Disagree with the proposal
    - Commenters caution that duplicating ENERGY STAR categories adds complexity without market need and could confuse users.
    - Several recommend coordination with DOE and ENERGY STAR rather than creating overlapping DLC categories.
    - Most oppose duplicating ENERGY STAR categories like GSLs and residential downlights; DLC would need significant adaptation.

Key Question 3: *What feedback do you have on the DLC's proposal to cover medium screw-base omnidirectional and directions general service lamps (GSLs) previously covered by ENERGY STAR?*

- *What considerations should the DLC take into account?*
- *Are there any lamp shapes/sizes that are missing that should be covered?*
- *Should the DLC use ENERGY STAR's test methods and metrics?*

Responses:

- Agree with the proposal
    - A few commenters request consideration for higher-lumen or specialty screw-base lamps, but only if utilities provide sufficient incentive clarity.
    - There is limited support for medium screw-base lamps, mostly for commercial shapes (e.g., BR/PAR/vintage) not previously covered by ENERGY STAR.
- Disagree with the proposal
    - Many oppose adding GSLs, saying they're commoditized, low-rebate, and no longer incentivized.
    - GSL QPL inclusion due to low value, market saturation, and lack of differentiation.
    - Rebates have largely ended, and lamp replacements are seen as transitional.
    - Multiple commenters emphasize the regulatory burden and lack of commercial relevance for certifying low-cost screw-base lamps.

Key Question 4: *What feedback do you have on the DLC's proposal to create a PUD for medium screw-base LED replacement lamp for HID?*

- *What considerations should the DLC take into account?*
- *Can the DLC use the mogul screw-base test methods currently in place in V5.1?*
- *What reference luminaire types are available, and that can be used to support standardized in-luminaire (non-bare lamp) performance testing, to support in-luminaire metrics.*
- *Is there a need to include higher lumen outputs bins than 10,000 lumens for in-luminaire testing and what are the ramifications of increasing or not increasing this threshold?*
- *Is allowing only Type B (not Type A or Type C) medium screw-base replacement lamps for HID a concern?*

Responses:

- Agree with the proposal
    - Provided appropriate reference housings for in-luminaire testing
    - Request for higher maximum threshold
    - No concern over excluding Type A or Type C lamps
    - Makes sense. Use the same test methods and specify suitable reference luminaire housings
    - Add E26 HID lamps.
    - Useful addition. Equivalency claims should reference NEMA LS 20037-2024. Replace with bare lamp tests (and do the same for mogul screw-base HID replacement lamps).

    - Supports application diversity. Ensure specification reflects performance needs. Safety and compatibility concerns should be carefully addressed.
    - Supportive because all HID replacement lamps would be on one list regardless of base type.
    - Add E26 HID lamps, but recognize that rebates for these products are slowing down. Cost-benefit of pursuing rebates is minimal.
- Disagree with the proposal: none

Key Question 5: *What feedback do you have on the DLC's proposal to delineate strip luminaires from other linear ambient products?*

Responses:

- Agree with the proposal
    - Some support for a defined utility strip category to help distinguish simple, cost-effective products.
- Disagree with the proposal
    - Others feel the category adds little value, is unnecessary, or overlaps with existing classifications.
- A few suggested clearer criteria would be needed to avoid overlap or confusion.

Key Question 6: *Do the descriptors for form factor and mounting options accurately describe the range of options available in the market? How could they be improved?*

Responses:

- Agree with the proposal
    - Others communicate it would assist specifiers and incentive reviewers in identifying products meet program requirements.
- Disagree with the proposal
    - Several commenters oppose requiring form factor and mounting details in the QPL, stating this data is already on spec sheets.
    - Concerns that enforcing this info in QPL fields could create redundancy and inconsistencies.
    - Some believe it's unnecessary for user decision-making and adds maintenance burden.

Key Question 7: *Which of the converted specialty PUDs would require corresponding retrofit kits?*

Responses:

- Most respondents had no opinion or declined to comment on including application types in listings.
- Several commented that these products would not require retrofit kits.

Key Question 8: *Is there a need for the DLC to add a retrofit PUD that would correspond with the Direct Linear Strip Luminaire PUD?*

Responses:

- Most respondents had no opinion or declined to comment on including application types in listings.
- Several commented that a retrofit kit for these products is necessary.

Key Question 9: *Due to low product volume, draft 1 proposes to absorb the Landscape/Accent Flood and Spot PUD for outdoor products into the Architectural Flood and Spot PUD. Previously, these were differentiated by output. What is your feedback on this change?*

Responses:

- Mixed feedback: some agree combining related product types is logical.
- A few commenters find the proposal confusing and suggest clearer naming may help.

Key Question 10: *Beyond IP and UL, are there any additional environmental protection ratings that the DLC should consider adding?*

Responses:

- Multiple manufacturers oppose IP rating requirements, arguing that UL Wet/Damp ratings are sufficient and widely accepted
- Many expressed concern over the DLC requiring these ratings (which was not proposed).
- Several offered additional ratings that would be important to collect.

Efficacy and Output

General comments

Responses:

- Allowances
    - Keep the same PUDs for glare allowances as in V5.1
    - Allowances for low CCT products should be greater to align with the market
    - Create a 10% allowance for high color rendering outdoor and high bay products
- Do not require in-luminaire testing for lamps, only bare lamp
- Fix formatting issues in table
- Remove the large outdoor roadway retrofit category
- For retrofit kits:
    - Remove output limits
    - Ensure efficacy aligns with luminaires

Key Question 1: *What feedback do you have on the efficacy thresholds proposed in tables 5, 6 and 7? Will achieving these thresholds require tradeoffs in other areas? If so, what tradeoffs?*

Responses:

- Efficacy thresholds are too high
    - Too many products will be delisted
    - Energy savings are not significant enough to warrant an increase
    - Outdoor products cannot achieve proposed levels (particularly premium) without compromising distribution
    - The proposed threshold would be difficult to achieve for high bay technology
    - The number of premium products would be reduced
- Tradeoffs with efficacy include:
    - Cost
    - Color temperature and quality
    - Distribution and glare
    - Form factor
    - Light output
- The efficacy thresholds we have proposed are consistent with current market trends

Key Question 2: *What feedback do you have on the DLC's proposal to split out outdoor thresholds by PUD rather than setting one for the whole category?*

Responses:

- Agree with the proposal
    - Accommodates differences between technologies
    - Certain thresholds should be reduced so that the jump from the prior threshold is not as high
    - Ensure PUDs are well defined
- Disagree with the proposal
    - Creates complexity
    - The single threshold for mogul base lamps will cause issues if outdoor PUDs are split up for luminaires

Key Question 3: *Should in-luminaire thresholds for Mogul screw-base LED replacement for HID lamps match the thresholds for their luminaire counterparts? Is high efficacy harder to achieve in Mogul screw-base LED replacement for HID lamps than luminaires?*

Responses:

- Mogul base lamps should need to meet the same standards as luminaires
    - Outdoor mogul base lamps should align with the lower outdoor thresholds
- Thresholds should be slightly lower for mogul base lamps
    - Additional components such as the driver decrease efficiency
    - The proposed threshold is too high for most lamps
- Bare lamp requirements should be used rather than in-luminaire
- The DLC should remove all lamps

Key Question 4: *What feedback do you have on the DLC's proposal to allow lamps and retrofit kits to be listed with 1800 K/2000 K or Amber LEDs? (These Amber and lower CCT outdoor lamps and retrofit kits must meet applicable SSL V6.0 and LUNA V2.0 requirements to be listed.)*

Responses:

- Agree with the proposal
    - Supports retrofitting fixtures
    - Supports dark sky projects
- Disagree with the proposal
    - Lamps should be removed from the QPL
    - Ensure an appropriate tolerance for low CCT and amber
    - Set specific color quality metrics to support amber, such as color and lumen maintenance, and SPD disclosure
    - The DLC does not have the necessary value proposition

Key Question 5: *What feedback do you have on the DLC's chromatic definitions of de-Amber and pc-Amber?*

Responses:

- Agree with the proposal
    - Many respondents asked DLC to expand the definition of filtered-Amber to include more use cases.
    - Many respondents supported DLC's chromatic definitions, and some offered recommended changes including tolerances.
    - Allow longer wavelength LED products to be listed.
    - Specify how ANSI C78 development will align with DLC approach.
- Disagree with the proposal
    - Let the market define nomenclature and wavelength limits.
    - Specify short wavelength optical power thresholds for short wavelengths for turtle lighting rather than specifying which LEDs to use.

Key Question 6: *As defined, filtered-Amber LED luminaires are intended specifically for Hawaii installations. Is there another use case for indoor or outdoor filtered-Amber LED luminaires that isn't considered, and if so, what is missing?*

Responses:

- Agree with the proposal
    - Expand filtered-amber definition to cover more use cases.
    - Semiconductor fabrication facilities have additional requirements which could be addressed by filtered-Amber products.
- Disagree with the proposal
    - Specify acceptable optical power for short wavelengths rather than specifying technology requirements.

Key Question 7: *To encourage the use of lower-wattage products for additional energy savings and prevent over lighting, the DLC is considering maximum light output requirements for all PUDs and/or General Application categories without a current light output maximum (e.g., high-bays or troffers). What feedback do you have on this proposal?*

Responses:

- Disagree with the proposal
    - May result in the installation of more low output products
    - The DLC should regulate wattage instead
    - Certain applications, such as those with high mounting heights, require very high outputs
    - Will restrict innovation and go against the wants of the lighting industry
    - Dimming already solves this issue
    - The excess cost of over-lighting is incentive enough not to do it
    - This is out of the DLC's scope
- Agree with the proposal
    - Only in extreme cases
    - Might help reduce over-lighting in specific applications

Quality of Light

General comments

Responses:

- Look into flicker metrics such as Pst, SVM, and others
- Maintain V5.1 CCT requirements with an upper limit at 6500 K

Key Question 1: *The DLC is proposing to specify which outdoor products are required to be tested for Distribution Reports (i.e., products with CCTs at 3000 K and with the highest light output within a family). What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - This proposal makes sense
- Disagree with the proposal
    - Needs to be able to overlap with another test condition such as lowest efficacy, highest wattage, or lowest lumen output, etc.
    - Better clarification is needed
    - The proposed product is not commonly utilized by end users. Manufacturers should choose what is appropriate.
    - Do not change from V5.1 requirement as this would force retesting and increase overall burden, going against intentions to minimize additional testing burden
    - Consider accepting scaled IES files

Key Question 2: *The DLC is proposing to deprecate the use of the term "cutoff" in its PUD nomenclature (PUD letters C & D) and use Zero-Uplight and Uplight-Emitting terms instead. What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - Support for proposed change
    - Support for "zero-uplight" but not for "uplight-emitting" proposal
    - "Zero" is debated as a mathematical fact and suggestion to use "no-uplight" nomenclature
    - No problem as long as requirements don't change
    - Consider a limited uplight tier for near-zero designs that don't meet a strict zero limit
- Disagree with the proposal
    - Industry is familiar with cutoff terms and changing could cause confusion
    - Industry is considering bringing back these terms

Key Question 3: *The DLC is also proposing changing the zonal lumen requirements for PUD letters C & D to more effectively limit uplight and reduce wasted light and wasted energy. What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - Error in Table that should be corrected
    - Tightening the zonal-lumen limits is supported (with specific thresholds suggested)
- Disagree with the proposal
    - Limiting uplight will only cause people to use more products or shift to non-DLC products that provide they uplight they need/desire
    - Current requirements are sufficient and should not be changed
    - This will be difficult for certain products/applications
- Need more time to consider as this change could be significant

Key Question 4: *The DLC is proposing minimum light output requirements for three new Turtle Lighting PUDs. Are there any concerns with the proposed thresholds?*

Responses:

- Agree with the proposal
    - No major concerns
    - Add a very low tier
- Disagree with the proposal
    - Minimum light output thresholds seem to go against the spirit of encouraging lowest lighting levels and request for additional rationale regarding perceived risks of lower output luminaires
- Are these in line with local ordinances?

Key Question 5: *The DLC is proposing to no longer require UGR (tabular) thresholds for Linear Ambient, High-Bay and Low-Bay PUDs qualified to Premium. What, if any, concerns do you have about this proposal?*

Responses:

- Agree with the proposal
    - UGR should not be a requirement for indoor products (Standard or premium)
    - We support this proposal
- Disagree with the proposal
    - Keep UGR thresholds from V5.1
    - UGR should not be ignored

Key Question 6: *The DLC is proposing to require reporting of CS4 and CS7 color maintenance values per ANSI/IES TM-35-19 as a way to transition away from a custom color maintenance evaluation process previously developed by the DLC. What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - Reporting is good, but pass/fail thresholds for CS4 and CS7 should be proposed
    - Recommend DLC provide a tool/calculator to support adoption of TM-35
    - This proposal seems appropriate
- Disagree with the proposal
    - Concerns over a publicly available tool/calculator for use of TM-35
    - TM-35 is supported and very helpful for luminaire designers and expert users, but is not considered appropriate for broad qualification considerations and may be very harmful in certain applications
    - Need additional clarification
    - Concerns that existing LM-80 data may not be compatible with TM-35 needs
    - Concerns that this proposal is ahead of industry (happening too soon)

Key Question 7: *Some product categories/types do not allow Amber or 1800 K/2000 K options. What is your feedback on this limitation?*

Responses:

- Add this option for all product types
- Rationale for exclusion is not clear

Controllability

General comments:

- If a luminaire uses a sensor for bluetooth control would that meet the wireless bluetooth requirement?
- We support these changes. Listing product controls options and their associated Controls Categories will allow EE programs to validate the purchase controls, thereby mitigating uncertainty in claiming savings. The associated information needs to be available on the QPL downloads, not just through an API.
- We urge DLC not to allow wildcard characters within the controls options, because it complicates automatic matching and verification of controls options.
- The verbiage “installed at factory” could cause confusion. Clarification is needed.
- One DLC family can include different brands with different catalog structures. There may be a need for multiple controls tables and linkage between family members and these tables.
- Listing each control option for each possible product combination will increase listing cost. Control listing tables that do not allow for wildcards or bracketing is a problem for MTO product lines.
- The NEMA 5-pin twist lock is not that common and will prevent upgrades. Remove this option.
- Receptacles like the Zhaga Book 18 connector can also be side-mounted or mounted separately from the luminaire (like pole-mounted).
- NEMA sockets are not recommended to be used at the bottom of a luminaire because of reliability concerns.
- Signals on pins also need to be mentioned, not just mechanical fit (e.g. Zhaga Book 18 with D4i signals and Zhaga-D4i certified)
- For non-D4i products, ASI C137.4 is the US Standard.
- The difference between a daylight sensor and photocell is only different in its function not its device characteristic.
- Remove 20% dimming limitation and keep stepped dimming for lamps.
- Auxiliary power is required to power sensors and controllers.
- Make submitting controls options tables for existing families voluntary.
- A single DLC family may include different brands with different catalog number structures. This means there may be a need for multiple controls options tables to apply to members within a family.
- The application process should be developed to enable partial release of the controls table to handle control options that do not require external approval, and each line of the controls table that may receive approval should be able to be released individually.
- Clearly state what makes a driver "digital"
- Exclude Type B [lamps] from being required to be dimmable.

Key Question 1: *The DLC is requiring all qualified products listed to be continuously dimmable down to at least 20%. What feedback, if any, do you have about this proposal?*

Responses:

- Disagree with the proposal
    - Many outdoor roadway luminaires and indoor industrial products have no need for dimming.
    - Product categories that typically do not use dimming should be exempt.
    - LED dimming compatibility is still a major challenge for end users.
    - Unwise. Do not require efficient fixtures that fit a market need to be dimmable.
    - For HID replacement lamps, suggest keeping Step-dim, mainly due to no real continuous dimming from application point of view.
- Agree with the proposal
    - This is a reasonable proposal.
    - The minimum dimming level of 20% seems high.
    - [I]n favor. We routinely see community preferences for light levels lower than the standard IES criteria.

Key Question 2: *Are there any Driver Types missing in Table 19 or Table 20?*

Responses:

- DLC should remain open to all driver communication protocols that accomplish the same functions. Defining this list limits manufacturers and stifles innovation.
- PoE (IEEE 802.3bt) drivers.
- DALI-2 Part 251 (LumData) digital drivers.
- Tunable-white/RGBC multi-channel drivers
- none are missing that are relevant today

Key Question 3: *Are there any Integral Sensor Types missing in Table 19 or Table 20?*

Responses:

- DLC should remain open to all sensor communication protocols that accomplish the same functions. Defining this list limits manufacturers and stifles innovation.
- Microwave/RF motion sensors (common in parking decks).
- Camera-based vision sensors for roadway luminaires.
- Bluetooth beacon / asset-tracking radios (often bundled with PIR).
- none are missing that are relevant today

Key Question 4: *Are there any Driver and Integral Controller Types missing in Table 22?*

Responses:

- DLC should remain open to all driver and controller communication protocols that accomplish the same functions. Defining this list limits manufacturers and stifles innovation.
- NLC [Product] ID should not be needed in order to qualify for category 5 and 6.
- Matter-compatible wireless drivers (Thread network).
- DMX/RDM drivers for architectural color-changing fixtures
- none are missing that are relevant today

Key Question 5: *Are there any Integral Sensor Functions and Technologies missing in Table 22?*

Responses:

- DLC should remain open to all sensor communication protocols that accomplish the same functions. Defining this list limits manufacturers and stifles innovation.
- Environmental sensors, such as fire detection, temperature, fire-arm detection
- Gas sensors
- Request clarification on 'daylight' sensors vs. 'photocells'.
- Traffic-speed / vehicle-count sensing (radar-based) tied to adaptive roadway dimming.
- CO_2 / IAQ sensors for warehouse high-bays with demand-controlled ventilation.
- none are missing that are relevant today

Key Question 6: *Are there any Controls Ready receptacle types missing in Table 18?*

Responses:

- DLC should remain open to all controls ready receptacles that accomplish the same functions. Defining this list limits manufacturers and stifles innovation.
- What is the rationale behind the proposed removal of knockouts? Knockouts need to be allowed.
- Zhaga Book 20 side-entry four-pin (growing in Europe/North America for bollards).
- Headphone Receptacle
- Book 18 two-port (top + side) combo used on some post-tops.
- 3.5 mm phone/audio jack
- 4-pin
- Terminal with 3-wires
- Zhaga Book 18 receptacles are used for indoor applications.

Key Question 7: *Draft 1 proposes that luminaires with only 3-pin Twistlock receptacles as an option are not eligible for V6.0 listing because they do not support dimming through the receptacle. What feedback, if any, do you have about this proposal?*

Responses:

- Disagree with the proposal
    - Certain markets/municipalities still require 3-pin Twistlock. Please keep this option.
    - There are various scenarios including a luminaire with multiple receptacles and embedded controls within the luminaire that would be excluded. We would recommend providing utility programs with as many options as possible and keeping these in-scope.
    - The 3-pin twistlock receptacle, and dusk till dawn lighting are extremely common in outdoor spaces. DLC should not disqualify these products because they are not dimmable during their illumination at night.
    - 3-pin twistlock receptacles should be eligible for V6.0. Even though they don't support dimming, they can still provide significant energy savings and should not be excluded.
    - Do not limit component options for fixtures that otherwise are efficient and quality. Older facilities will not have 5-pin capable receptacles & frequently choose to run dimming leads separately

    - Other methods of control can be used in conjunction with the receptacle.
    - It should have an option to be reported on the QPL.
- Agree with the proposal
    - Support this.
    - The NEMA 3-pin should not be included.
    - correct, agree with this statement
    - Agree. 3-pin provides photocell power but no dimming leads, undermining DLC's controls goal. Keeping eligibility to 5-7-pin (or Zhaga) ensures listed products can respond to demand-response or adaptive-dimming signals.
    - I feel that is a fair restriction. I wouldn't want any client of mine to install equipment that doesn't future-poof them for changes to dimming technologies, asset management systems, etc. that they may not currently have the budget or infrastructure for but could during the service life of their new equipment.

Field Adjustability

General comments:

- Missing in this section is the technology embedded in the product to adjust in the field, like NFC (e.g. Zhaga book 24&25) and DALI
- Requiring explicit factory-default settings, full variant listings, physical labels, and detailed report fields greatly increases the amount of "paperwork" and version-control work for manufacturers.
- Requiring a permanent, affixed label stating the factory default CCT and wattage adds hardware and tooling costs and yields minimal benefit, as installers confirm switch positions during commissioning and thereafter rely on site-specific settings.

Key Question 1: *One implication of the proposed requirements for Field Adjustable Light Output products is that products seeking a FALO listing will need to be dimmable (changes made remote from the luminaire during normal operation) as well as field adjustable (changes made while physically located at the individual luminaire, typically during installation). Does this change have any implications for your current product line?*

Responses:

- Disagree with the proposal
    - Considering some luminaire light output adjustability is made using the dimming wires the ability to further adjust the light intensity from a remote location via a dimmer might interfere with the set light output of the luminaire.
    - No, but sometimes, the dimmable function and the filed adjustable function share the same dimming circuit from the driver.
- Agree with the proposal
    - This does not present an issue for any of our existing product lines.
    - excellent standard to keep in lowest setting

Key Question 2: *Do you have any feedback about the changes proposed for reported data about field adjustable luminaires?*

Responses:

- Disagree with the proposal
    - Table 25 implies that Field Adjustable Light Output (FALO) products should have a discrete number of available settings. While this may be the case for products whose light output can be adjusted via a physical switch, there are many products that use continuously programmable drivers that can be programmed in milliamp increments, making the reporting modeled in Table 25 difficult.
    - It is unlikely that a FALO product would be ordered specifically to be used exclusively at its lowest setting. If that were the case, a product with a lower light output in general would be used. Having to adjust from the default minimum setting in most cases would lead to increases in installation time.
    - DLC's proposal to require that field adjustable products are shipped from the factory with the switches set to lowest wattage and CCT settings does not align with market demand/customer needs.
    - [This proposal may interfere] with safety standards testing [such as] UL1598 and UL8750.
    - Love the idea of shipping fixtures in lowest CCT settings but [I do] not suggest to set to the min wattage setting.
    - The requirement to set the CCT to the lowest setting does not make sense. The rationale for wattage, is that the installer will not change the default setting, and so by setting it to the lowest wattage, there will be more energy savings. However, for CCT the middle setting is usually the most efficacious (i.e. 4000K).
    - The change in v6 draft 1 to mandate the default output at the lowest CCT and lumen output setting for all products is not acceptable for several reasons. First, the field selectability is not always deployed to satisfy the needs of in-field adjustment, but also as a tactic within supply chain management to minimize product variation. Second, regarding the FACT characteristic indoors, it would be unexpected that the majority of the users would prefer the lowest CCT and to mandate this as the default would require adjusting every luminaire and/or dissatisfying the user. Third, the manufacturing processes have been well established to align default outputs with customer preferences, mandating a default level adds complexity/cost in redefining manufacturing process and increases the likelihood of a negative customer experience.
    - We applaud DLC's attempt to increase energy savings by requiring the default lumen output (as-shipped) setting to be the lowest lumen output setting. However, we are against this proposal for the following two reasons: requiring the lowest setting for FALO products may effect EE Programs' energy savings claims. [Additionally], our program participants commented that they would not like their selectable wattage fixtures to be forced to use a certain wattage level as the default.

    - Requiring default CCT settings setting 1 [is] not in line w/ customer requests and the manufacturer's need for flexibility.
- Agree with the proposal
    - Due to the increased efficiency of LED light sources, setting field adjustable light sources to the lowest level (level 1) from the factory is an important step in preventing over lighting and energy waste.
    - I support the requirement that field adjustable light output fixtures be set to the lowest level (level 1) from the factory to help reduce over lighting and wasted energy.

FACT and Color Tuning

General comments

Responses:

- Shipped settings should be flexible depending on the use case
- Worst-case scenario tests should be sufficient for validating/demonstrating products meet energy efficiency requirements and there is no need to ship at the lowest CCT
- Support for all outdoor fixtures to be shipped at the minimum CCT to minimize skyglow impacts
- The mandated default position and shipped state requirement for FALO and FACT should be removed

Key Question 1: *SSL V6.0 draft 1 proposes eligibility for full color-tunable products (i.e., those that can tune beyond standardized CCT quadrangles defined in C78.377. What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - Support for the proposal due to increasing market demand and need for QPL to accommodate this product type
- Disagree with the proposal
    - Against this proposal due to it being a small/niche product type
    - Against this proposal if requiring increased testing beyond standardized CCT quadrangles

Key Question 2: *As described in the Field adjustability section of Draft 1, DLC proposes that field adjustable color temperature (FACT) product types are not considered color tunable. What feedback, if any, do you have about this proposal?*

Responses:

- Agree with the proposal
    - Support for this proposal (makes sense and/or seems appropriate)
    - Consider changing “field adjustable” nomenclature to “field selectable” across FACT and other field adjustable policies
- "Disagree with the proposal"

- Provide additional clarity around field adjustable CCT as not being considered color tunable

Lifetime

General comments

Responses:

- Consider input voltage and drive currents at each wattage to better understand and inform rated lifetime requirements being met

Key Question 1: *What feedback, if any, do you have regarding the proposed requirement that all DLC Standard and DLC Premium listed products meet or exceed a 50,000 hour driver lifetime?*

Responses:

- Agree with the proposal
  - Lifetime is a major issue and this proposal is supported to provide utilities with increased confidence in long term savings and satisfaction
  - Consider reported lifetime for Standard and maintaining thresholds for Premium
  - This is an important topic to finally address for Standard products
  - Support this proposal
  - Considering increasing the Premium threshold to 100,000 hours and leaving proposed 50,000 hour threshold for Standard
- Disagree with the proposal
  - Do not expand driver lifetime testing to all products
  - Consider granting an exception or waiver for existing qualified products
  - Recommendations for a shorter threshold for Standard (25,000 hours - 40,000 hours)
- Add a disclaimer that lifetime is in comparison to subcomponent performance claims and not indicative of actual performance expectations

Key Question 2: *Draft 1 proposes a driver lifetime exemption for Type A and Type B lamps. What feedback, if any, do you have with this exemption proposal? Are there other product types you believe should be exempt from the driver lifetime requirement proposed?*

Responses:

- Agreement with / Support for this proposal
- Request for additional exemption rationale
- Allow OEMs the ability to build in surge protection devices

Key Question 3: *Draft 1 proposes an LED L70 lumen maintenance requirement of 36,000 hours or longer for Amber LEDs and 1800 K-2000 K LEDs. Is there a concern regarding this lumen maintenance requirement for this product type?*

Responses:

- Concerns about availability of LM-80 data for these products
- No major concerns
- Increasing above this threshold could impact supply chains due to limited availability, suggest to not increase above this

Key Question 4: *Solar powered luminaire drivers are understood to operate in variable load conditions which is different than most outdoor luminaires. What feedback, if any, do you have regarding the proposed driver lifetime requirements for solar powered outdoor luminaires?*

Responses:

- Consider an adjustable lifetime threshold based on a variable load profile, solar cycling and field data reporting to ensure a meaningful lifetime requirement that doesn't penalize well-designed solar luminaires

Key Question 5: *Draft 1 proposes optional reporting for ISTMT reports in accordance with ANSI/IES LM-98-24. What feedback, if any, do you have regarding this proposal?*

Responses:

- Agree with the proposal
    - Support for and agreement with this proposal
    - Need to make sure labs have this standard in their scope
    - Continue to allow existing ISTMT testing pathways
- Disagree with the proposal
    - Drop this proposal

Sustainability

General comments

Responses:

- Agree with the proposal
    - Supports recyclability and decarbonization at a holistic level
- Disagree with proposal
    - The DLC should not include sustainability in V6.0
    - Unnecessary, info can be found on manufacturer sites
    - Lack of existing frameworks
    - Disadvantages smaller companies that cannot afford ecolabeling
- The two levels within ISO 14025 are unnecessary

- RoHS is outside of specified scope, suggest wording change

Key Question 1: *Are there any certifications not included in Table 29 that should be?*

Responses:

- IDA Dark Sky Approved
- TUV Rheinland Green Product Mark
- Verified Product Carbon Footprint (ISO 14067)

Key Question 2: *Are there any concerns with providing the verification materials listed here as proof of compliance?*

Responses:

- Having to update documentation with the DLC is a burden
- Do not require any verification materials
- Include caveats for confidential information and large files
- Verification should be handled through OEMs
- Whittle down the set of options to reduce verification burden

Key Question 3: *Are there concerns with including labels that may expire if not renewed?*

Responses:

- Keeping track of expiration is an additional burden
- Verifying that labels are current adds additional cost
- Keeping expired certifications on the QPL could be misleading
- Keep displaying expired certifications for up to a year and label them as "expired"
- No concerns

Premium

General comments

Responses:

- This would cause existing Premium products to be downgraded to Standard since most use 0-10V dimming drivers
- These requirements could lead to duplicate listings of the same model product with 0-10V and digital driver options.
- Keep current listing structure to prevent duplicate listings / allow for wildcards and bracketing of driver options
- Consider advanced controllability as a separate pathway than wrapping into Premium requirements and keep Premium focused on higher efficacy and immediate energy savings

Key Question 1: *Draft 1 proposes that all Premium listings be required to be eligible for controls categories 2, 5, or 6 as described in Table 16. What feedback, if any, do you have regarding this proposal?*

Responses:

- Agree with the proposal
    - This is a good idea
    - Should also include category 4 with non-networked controllers
    - We support this proposal
    - Allow SKUs that fall into other categories but have orderable options that would meet requirements of categories 2, 5, or 6
    - Smart lighting systems are essential in realizing further improvements in energy efficient lighting and being at least controls ready is critical for future-proofing lighting installations
- Disagree with the proposal
    - Premium should be focused on efficacy and not controls
    - This represents a significant cost burden and added complexity on manufacturers and end users in terms of cost of product and commissioning
    - Canadian market will lose access to DLC Premium listed products
    - Do not require network lighting as it will negatively impact Premium-Only utility territories

Key Question 2: *Draft 1 proposes that all Premium listings are driven by a digital driver to better support higher controls capabilities as described in Controllability requirements 2 and 3 in Table 30. What feedback, if any, do you have regarding this proposal? Are there any missing communication methods that should be considered? Are there any methods included that should not be eligible?*

Responses:

- Agree with the proposal
    - Agreement with/support for this proposal
    - Requirement should be specific to D4i
- Disagree with the proposal
    - Do not require digital-only drivers
    - Analog fixtures can be digitally controlled and can provide equivalent energy savings as digital drivers
    - Overall superiority of digital drivers is not reflective of the state of technology
    - Analog 0-10V and other technologies that meet the same functionality should remain eligible
    - High cost and limited availability of specific voltage digital drivers would negatively impact consumers, especially in Canada

Key Question 3: *Are there any luminaires on the market with 5-pin Twistlock receptacles that utilize digital drivers? If so, are there performance limitations when compared to luminaires with 7-pin Twistlock receptacles?*

Responses:

- Yes, specific pins can be used for communication
- No, without an additional pin there is no Aux power for a DC controller
- Options are always limited for anything with 347V

Key Question 4: *What feedback do you have regarding the DLC eliminating its UGR requirements for linear ambient, high-bay, and low-bay PUDs seeking Premium qualification?*

Responses:

- Support for this proposed change
    - Remove UGR for all products
    - UGR should not be ignored totally and is important for quality of light considerations

Solar Luminaires

General comments

Responses:

- Agree with the proposal
    - Could be a good starting place for programs to introduce solar outdoor lighting
    - Clarify what types of luminaires are in scope

Key Question 1: *Are there any requirements for outdoor lighting in this document that would hinder qualification for solar powered luminaires, specifically, due to technological and application-related differences?*

Responses:

- Concern about surge and transient protection

Key Question 2: *Is there any additional information about solar powered luminaire systems not listed above that should be included on the QPL?*

Responses:

- Surge and transient protection

LUNA V2.0

General comments

Responses:

- Decorative PUDs should have a U Rating limit of U1 to not trump LUNA goals
- Allow turtle lighting PUDs to use filtered-Amber LEDs
- What is the value proposition for LUNA for manufacturers?

Key Question 1: *Draft 1 proposes to limit the maximum CCT for outdoor lamps and retrofit kits to 2700 K (instead of 3000 K) for these products to qualify to LUNA. Is there any concern with this proposed requirement?*

Responses:

- Agree with the proposal
    - Many respondents supported the proposal
    - 2700 K aligns with ordinance requirements.
    - Include CRI requirements
- Disagree with the proposal
    - 2700 K would limit product eligibility and should increase to 3000 K
    - Most corncob lamps are 3K/4K/5K and would not be eligible.
    - Additional efficacy allowances may be needed for 2700 K.

Key Question 2: *Is there a concern with allowing products with field adjustable CCTs above 3000 K (2700 K for lamps and retrofit kits) to be LUNA listed, as long as the product is shipped with the CCT set at a LUNA qualifying CCT level?*

Responses:

- Agree with the proposal
    - Acceptable with a lock out or tamper proof seal and clear labeling of approved settings.
    - Many respondents supported this change.
    - As long as product is shipped at lowest CCT.
    - Consider changing upper limit to 4000 K
- Disagree with the proposal
    - Increasing CCT introduces risk of higher CCTs in the field which should not be ignored.
    - Exclude this capability
    - Misalignment with dark sky principals.
    - Counter intuitive to allow this.

Key Question 3: *Recent research has demonstrated that S/P ratio is a better predictor of Sky Glow than CCT. Is there a benefit to the DLC showing product S/P ratios on the LUNA QPL? What feedback, if any, do you have regarding displaying S/P ratios on the LUNA QPL?*

Responses:

- Agree with the proposal
    - Many respondents supported this proposal
- Do not support the proposal
    - Use CCT.
    - S/P Ratio is uncommon and difficult to correlate with color and spectrum.
    - Benefit is dependent on application.
    - Adds test burden to manufacturers.
    - CCT is more familiar.
    - This would require additional testing. Same across luminaires in most cases.

Turtle Lighting

General comments

Responses:

- Align DLC requirements with Florida Fish and Wildlife requirements
- Will DLC be accepted by Florida Fish and Wildlife?
- Change Turtle Lighting PUD name to cover other applications
- De-Amber spectral range is too narrow compared to the broader market nomenclature and performance
- Clarify if de-Amber performance is specified at the chip level or luminaire level. Peak wavelength could shift due to optics, LED temperature and drive current.
- Broaden FWHM for de-Amber

Key Question 1: *What is your feedback on the proposed maximum light output requirements?*

Responses:

- Agree with the proposal
    - Some support of proposed limits.
    - Draft caps look reasonable, add tolerances.
- Disagree with the proposal
    - Do not restrict maximum light output
    - Up to lighting designer to pick light fixtures with appropriate lumens
    - Do not have minimum or maximum light output requirements.
    - Should be application based.
    - Limits are inconsistent with Florida Fish and Wildlife guidance.
    - Remove upper limits.

Key Question 2: *What is your feedback on the proposed use of G-Rating thresholds? Should the DLC specify a limit on high angle light instead (for example, by specifying % lumens in the FVH and BVH zones)?*

Responses:

- Agree with the proposal
    - G Ratings are a good starting point. Consider adding FVH and BVH criteria as a goal. Define G-Rating (fixed lumens not a percentage)
    - Keep G Rating and publish uplight lumens
    - G Ratings are appropriate but industry is heading to high angle light restrictions
- Disagree with the proposal
    - G1 is too low
    - Regulate % light in high angle zone

Key Question 3: *Are there any missing Turtle Lighting PUDs that the DLC should consider adding?*

Responses:

- Low-mount pathway bollards
- Decorative solar post-top PUDs
- Step lighting
- Landscape lighting

Key Question 4: *What is your feedback on the DLC's proposal to disallow other direct emission long-wavelength LEDs (such as red-orange LEDs) to be included in Turtle Lighting products in LUNA V2.0?*

Responses:

- All respondents expressed a preference for DLC allowing other long wavelength LEDs to be used.
- What is the rationale for excluding these LEDs
- If there is no optical power in blue, why exclude the products?
- Specify an optical power limit on long wavelengths instead of a blanket ban
- Excluding other products that could be used in the application

Key Question 5: *Solar powered Turtle Lighting PUDs will be allowed in this proposal. What is your feedback on allowing solar powered Turtle Lighting PUDs?*

Responses:

- Respondents supported the proposal

Equivalent Components

General comments

Responses:

- Tolerances in Table 40 are too restrictive
- Appreciation of proposal and DLC recognizing challenges faced when experience supply chain shortages and need for alternate components
- Clarify how this proposal will be implemented in the DLC qualification process

Key Question 1: *Draft 1 proposes additional reporting for alternately sourced equivalent LEDs and Drivers without requiring LM-79 testing on variations comprised of alternate sources (i.e., only worst-case variations are required to be tested). Should the DLC require an additional LM-79 test on worst-case conditions for multiple variations comprised of alternately sourced equivalent LEDs and drivers to ensure performance between these variations is truly equivalent considering all technical requirement thresholds to be evaluated against SSL V6.0?*

Responses:

- Agree with the proposal
    - Additional LM-79s on alternate component variations is supported
- Disagree with the proposal
    - No additional LM-79 testing should be required
    - Manufacturers should determine which combinations of alternate components are worst-case and test that version to demonstrate compliance with DLC thresholds
    - Focus on alternate variation performance in the surveillance program, not initial qualification

Key Question 2: *Draft 1 proposes additional reporting for alternately sourced equivalent LEDs and Drivers. Should this be expanded to include reporting pathways for other alternate components? E.g., Optical components, heat sinks, etc. If so, which other components should be considered in draft 2?*

Responses:

- Yes, add secondary optics, lenses and reflectors, as well as heat sinks
- No other alternate components should be considered
- Variations to form factor, number of LEDs, and current range for alternate drivers should be allowed
- Components that are approved in relevant safety documentation should be considered as acceptable alternates

Key Question 3: *What feedback, if any, do you have regarding the reporting of alternate components?*

Responses:

- An OEM's ability to deviate to approved alternate components in safety documentation should be free and clear of additional reporting to DLC unless performance drops outside of defined tolerances
- Request for additional details about how this reporting will be implemented in DLC qualification process
- If performance and ISTMT do not change, no need to report this information
- Consider internal/benchtop/in-house testing (i.e. from non-certified labs) to qualify alternate components
- Support for this proposal
- Suggestion to add generic LED and driver description information to requirements

Additional Reporting

General comments

Responses:

- Allow existing qualified products to be relisted without requiring retesting to newer LM-79 standard version
- Change "optics" to "luminaire aperture"
- Allow an image or a representative image from marketing materials

Key Question 1: *Draft 1 proposes a few changes to the format and information included in LM-79/color and LM-79/distribution test reports, including no longer accepting LM-79-08 and requiring*

test reports be in PDF format with an accompanying image of the tested product. What feedback, if any, do you have on the proposed changes?

Responses:

- Do not require product images
- Many times tested products are engineering samples that do not represent the production product performance, so images taken would not reflect the finished product customers will see
- Requiring test reports in PDF format is reasonable
- Create an exception that allows existing listings to relist using legacy LM-79 versions (i.e. do not require retesting to new version for already listed products)
- No concerns with this proposal

General Comments

Responses:

- Several respondents asked DLC to extend the implementation timeline
- Postpone delisting date to Q2 2027
- Several respondents asked DLC to allow automatic updates for listed V5.1 models that meet V6 requirements.
- Several respondents asked for DLC to provide a redline version for draft 2
- Continue to focus on energy efficiency and don't expand requirements.
- Use ANSI C82.77 For PF and THD
- Do not introduce significantly new topics in draft 2 or in the final release that weren't included in draft 1
- Consider simplifying requirements and minimizing update costs considering uncertain times and challenges with tariffs and supply chains.
- Not all of our comments were included due to short comment period
- Add a fourth approved lab option "Approved by UL"
- For low power products (< 10W), remove PF and THD requirements
- Fix formatting issues in draft 1
- Allow PoE products to be listed more easily and to qualify for Premium
- Require that mogul screw-base LED replacement lamps use NEMA LS 20037-2024 to report equivalency
- Decouple quality of light metrics from technical requirements as they do not directly reduce energy use.
- Allow Standard classification listing to relist for free and without testing for a certain amount of time.
- Limit your scope to advancing energy efficiency and efficacy thresholds.
- Coordinate with ENERGY STAR program rather than duplicating it.
- Table 41 has some outdated driver examples listed.

- Update IEEE 1796 standard to newest version if light output frequency needs to be measured.
- Consider extending timeline due to administrative burden on both sides (submitter and reviewers) and risk of application delays.
- Increase allowance for 3000 K LEDs by 5%.