

Application Guidance for LUNA V1.0

This document explains common misunderstandings of the LUNA Technical Requirements that impact application review and timing. If you have questions or would like assistance working through a LUNA application, please email us at applications@designlights.org.

For a successful application, the LUNA Excel-based application form must be filled out accurately and in its entirety. The blank template application form can be found [here](#); an example of a completed application form can be found [here](#). When filling out the form, pay particular attention to the following provisions of the LUNA requirements.

1. Fill out complete model numbers.

Individual rows of the application form correspond to the elements that will be listed on the DLC Qualified Products List (QPL). Applicants who have submitted SSL applications may have used wildcards and bracketing, for example:

Wildcard: ABC-200W-[All Color Options] **Bracketing:** ABC-200W-[BL, WH, SV, RD]

LUNA requires more specific model numbers than baseline V5.1 SSL policy, detailed below.

There are several product configuration variables that may not be grouped together in a single row on LUNA applications, which changes the nomenclature and listing approach for LUNA products as compared to non-LUNA SSL products. As of April 26, 2023, unique model numbers based on controllability capabilities are no longer required.

Specification of Communication Protocols, Sensors, and Control Capabilities

Communication protocols, sensors, and control capabilities must be specific to the model number in a given row. As of April 26, 2023, variations in product configuration and capabilities may be grouped via bracketed options or wildcards as they may be with non-LUNA SSL products.

Additionally, the information indicated in the subsequent relevant columns of the application form must be specific to the model number in a given row.

- **Communication protocols must be specific to the model number listed on a given row of the application form; options may be bracketed or otherwise wildcarded.**

For example, if a product may be ordered in versions that communicate via a 0-10V wired protocol or a DALI wired protocol, those two versions of the product may be grouped together on the application form, as they are in SSL V5.1:

Model Number	Wired Communication Protocol (please select from dropdown)
ABC-123-456-[10,DALI]	0-10V Analog; DALI

This applies to all types of configurable communication protocols, including the normal SSL V5.1 wired and wireless protocols (columns AJ-AM in the application form), and the LUNA-specific communications between a single control point and communications between multiple control points (columns BE-CE in the application form). For more examples of how to adequately break down a model into relevant options, see the [example application form](#).

- **Integral sensors and control capabilities must be specific to the model number listed on a given row of the application form; options may be bracketed or otherwise wildcarded.**

The listing requirements for sensors and control capabilities are similar to SSL V5.1, as long as the integral sensors and control capabilities comply with LUNA V1.0 dimming requirements.

For example, a given product may be ordered with the following three control options:

- A NEMA 5-pin receptacle (“blank” option)
- A bi-level switch dimming down to 50% (Bi50 option)
- An integral photocontrol (P option)

Under LUNA V1.0, the “Bi50” version may not be included because the luminaire cannot be dimmed down to at least 20% of maximum power with this integral control. This product may be entered into the application form in one of two ways:

- **Bracketed option:** The “blank” and “P” versions may be bracketed as a group the same way they are in SSL V5.1, where the “blank” version includes an empty NEMA 5-pin receptacle, and the “P” version includes a photocontrol that the manufacturer pre-installs in that receptacle:

Model Number	Sensor Type <i>(please select from dropdown)</i>
ABC-123-10A-[AA,FA]-[blank, P]	Exterior Photocell; Sensor Receptacle

- **Wildcarded option:** Alternatively, the model with these acceptable options may be represented with wildcard grouping this way:

Model Number	Sensor Type <i>(please select from dropdown)</i>
ABC-123-10A-[AA,FA]-[All Options except Bi50]	Exterior Photocell; Sensor Receptacle

This applies to all types of integral sensors and control capabilities that a product may be ordered with, including the ones in the V5.1 Technical Requirements (columns AF-AH in the application form) and the additional information in the LUNA Technical Requirements (columns AY-BC in the application form). For more examples of how to adequately break down a model into relevant options, see the [example application form](#).

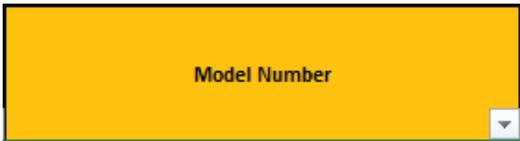
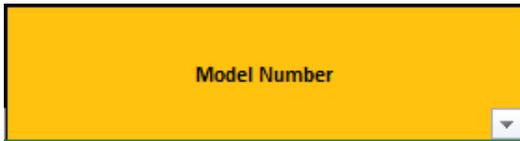
Specification of Mounting Structures

The LUNA requirements include two scenarios in which accessories may need to be specified with the model number in the application form and QPL listing: (1) the mounting structures, and (2) any shield accessories seeking qualification. The example below focuses on the mounting structure, which is applicable for all PUDs with poles/arms. Note that the same principle applies to shield accessories should the applicant wish to list versions of the product with shields.

- **Mounting structures must be explicitly included in the model number, even if the mountings are separately ordered accessories.**

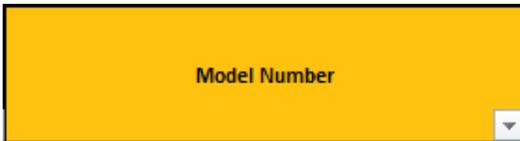
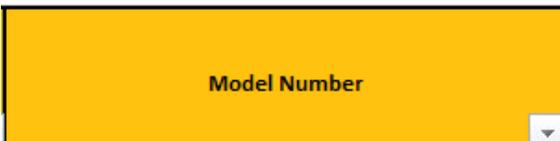
LUNA contains additional provisions and restrictions around the mounting options for luminaires. If mounting structures are provided as *options within a luminaire ordering code*, the model numbers may be structured similarly to non-LUNA V5.1 SSL listings, where mounting options are bracketed or wildcarded within a model number.

For example, a given luminaire has two mounting structures offered as *options*: a pivoting yoke mount (“Y”) that does *not* meet the LUNA aimability/tilt requirements, and a fixed horizontal arm (“FHA”) that does. The resulting model number may be wildcarded with all mounting options on a non-LUNA V5.1 application, but is restricted to only the LUNA-eligible FHA option on a LUNA application:

<i>Non-LUNA V5.1 Application:</i>	<i>LUNA Application:</i>
 ABC-123-456-[All Mountings]	 ABC-123-456-FHA

If the ordering code for the luminaire does *not* explicitly include mounting options because mountings are sold as separately ordered accessories, *these accessories must be explicitly identified in a parenthetical note at the end of the model number field.*

For example, a given pole/arm-mount area luminaire has a basic model number (ABC-123-456) that does not include a mounting, and the manufacturer offers two mounting accessories, a yoke mount that does *not* meet the LUNA aimability/tilt requirements, and fixed mount that does. These accessories are sold under the part numbers DEF-Y (for the yoke) and DEF-FHA (for the fixed horizontal arm). The structure of the model number on a non-LUNA V5.1 application should not contain any mounting options, but on a LUNA application, it must include the LUNA-eligible FHA option:

<i>Non-LUNA V5.1 Application:</i>	<i>LUNA Application:</i>
 ABC-123-456	 ABC-123-456 (with accessory DEF-FHA)

Mounting structure requirements also have implications on information provided in spec sheets, supplemental documentation, and test reports, noted in the sections below.

Application Form Completeness

Please complete the entire application form, particularly the Reported Performance Table tab. There is help text in row 5 of the Excel sheet that provides instruction on specific columns, but if in doubt, best practice is to complete all columns. **All columns in the LUNA-specific section on the far right of the sheet (columns AY-CE) must not be left blank.** The following bullet points provide additional guidance.

- **DLC Category/General Application/Primary Use (columns B-D):**
If you are seeking LUNA designation, ensure that the products are eligible based on their end-use. Refer to Table 1 and 2 in the [Technical Requirements](#) for eligibility information.
- **Reported Uplight (column AC):**
Unlike non-LUNA V5.1 requirements, where uplight is strictly a reported metric, LUNA V1.0 has U Rating thresholds. Refer to Table 5 in the [Technical Requirements](#) for U Rating requirements.
- **General V5.1 Sensors, Control Capabilities, Dimming and Communication Protocols (columns AF-AM):**
These elements must be specific to the model number in a given row, as noted in the discussion of model numbers above. Indications in these columns must also correspond to the specification sheet or supplemental documentation (more detail below).



Do not select multiple options from the dropdown menus unless the specific model number has each of these features and capabilities available.

- **Field-Adjustable Light Distribution (FALD) (columns AR-AT):**
FALD products are not eligible for LUNA qualification. While some limited aimability (+/- 10 degrees) is allowed, this will not be categorized as FALD for LUNA-seeking products. Products previously qualified as FALD can be qualified to LUNA if they meet the aiming requirement, but they will no longer be categorized as FALD once qualified under LUNA.
- **Reported information related to White-Tuning (columns AU-AX):**
White-tunable products are only eligible for LUNA if their entire tuning range is within the LUNA-acceptable CCT range of 2200K-3000K. Products that can tune between 3000K-5000 are *not* eligible for LUNA.
- **LUNA-Specific Sensors, Control Capabilities, Dimming and Communication Protocols (columns AY-CE):**
These elements must match the model number in a given row, as noted in the discussion of model numbers above. Indications in these columns must also correspond to the specification sheet or supplemental documentation (more detail below).



Do not select "Yes" for multiple columns in these sections unless the specific model number has each of these features and capabilities available.

2. Specification Sheet and Supplemental Marketing Documentation

The LUNA Technical Requirements require that specific information be present in the customer-facing documentation. In general, this is expected to be in the product specification sheet, though typically it is also acceptable if it appears in other customer-facing marketing materials, such as catalogue pages, brochures, or installation instructions.

LUNA V1.0 has documentation requirements beyond what is required for V5.1 products, including the following:

Mounting Options/Accessories, Including Aiming

All products seeking LUNA designation must explicitly identify the mounting structures within the model number field on the application form. This information, including ordering codes of the option or accessory, must correspond to information provided in the customer-facing product documentation. Products without a specific mounting structure are acceptable for LUNA; however, if a mounting structure is present and included in the application form, then the mounting structure must be included in the documentation and vice-versa.

- The mounting structures must explicitly address if they are tiltable/aimable, and if so, what the maximum tilt angle is. Drawings or photographs are required. For example, see Figure 2 on page 21 of the LUNA Technical Requirements:

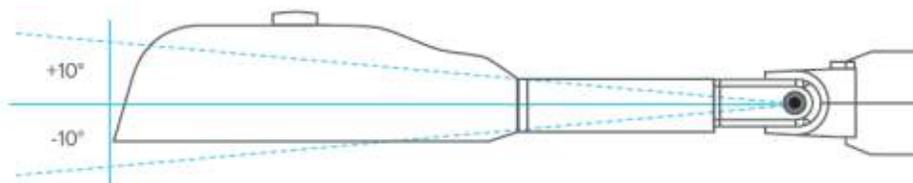


Figure 2: Acceptable mounting bracket tilt angle for LUNA qualification.

This provision applies to all mountings, including slip fitter, trunnion, yoke, and other common mounting mechanisms. If aimability/tiltability is not *explicitly* addressed in the spec sheet or supplemental materials provided, clarification will be requested, and it is likely that revisions to this material will be required and delay the review.

- Acceptable mounting structures may not tilt more than +/- 10 degrees.
- Mountings structures that do not meet the required provisions must be excluded from the LUNA-eligible model rows in the application form.

Shielding Options or Accessories

The following PUDs are required to have shields *available* for them, either as an option or an accessory.

- Pole/Arm-Mounted Area and Roadway Luminaires
- Pole/Arm-Mounted Decorative Luminaires
- Specialty Hazardous Area Lighting
- Specialty Hazardous Pole/Arm-Mounted Area and Roadway Luminaires

The availability of a shield, including an ordering code, must be clear and explicit in the specification sheet or supplemental documentation.

Note that products are not required to be submitted with the shields, but are required to have shields available, even if those shields are not included in the submitted model numbers for qualification.

Dimming Details

Specification sheets must include details on the dimming functionality of products beyond what is required for non-LUNA V5.1 products.

In addition to clearly indicating that a product is dimmable, the spec sheet must indicate:

- That the product is *continuously* dimmable (as opposed to stepped dimmable)
- The percentage of full power or current at the product’s minimum dimming level (must be 20% or lower). Reporting a percentage of full light output is *not* sufficient. The value reported in the spec sheet and the value reported in column BD of the Reported Performance Table must match and must be provided as a percentage of full (i.e., non-dimmed) power or current.

Communication Protocols, Sensors, and Control Capabilities

Products seeking LUNA designation require additional details on their specification sheet or supplemental materials based on Tables 8, 9, and 10 in the [LUNA Technical Requirements](#) (and corresponding to columns AY-CE in the application form).

Note that the “Acceptable Terminology” columns in Tables 8, 9 and 10 in the LUNA Technical Requirements display options for language that *must* appear on spec sheets or supplemental materials if that communication protocol, sensor, or capability is claimed on the application form in the relevant column.

For example, it is not sufficient to simply state “0-10V dimming” on a spec sheet. The additional details of IEC 60929 Annex E, ANSI C137.1-2019 (8-volt), or ANSI C137.1-2019 (9-volt) *must* also appear on the spec sheet or supplemental materials.

Similarly, if the product has a photocontrol with self-calibrating astronomic time-clock, the spec sheet or supplemental materials *must* have either “photocontrol with astronomic timeclock” or “dusk to dawn timer” explicitly present.

Failure to match the specification sheet with selections in the Reported Performance Table will result in necessary revisions to the marketing materials and/or application form, and will delay the application review.

*Note that the parameters described above are **in addition** to the requirements in Tables 8 and 9 of the baseline [V5.1 Technical Requirements](#).*

3. Required Testing and Test Reports

Tests for families containing LUNA products have a number of requirements beyond the baseline V5.1 testing requirements. In all cases, applicants are encouraged to check each explicit testing requirement in the LUNA V1.0 Technical Requirements to ensure that the testing plan captures the given requirement, particularly in large, complicated families where one test may cover more than one requirement or parameter.

In families containing a mix of products seeking LUNA designation and products that are not, all LUNA-required testing must be conducted on LUNA-eligible versions of the product. See Table 3 in the [LUNA V1.0 Technical Requirements](#) for an example of a family with LUNA-eligible and non-LUNA-eligible products and a suggested plan for testing.

LM-79/Distribution Testing and Reports

- **LM-79/distribution reports (and .ies files) must be on the highest light output version of each optic, at the highest LUNA-eligible CCT available.**

For products seeking LUNA designation, goniophotometric testing to document the distribution performance of the luminaires must be conducted on the highest light output version of a given optic (highest lumen package), and at the highest CCT.

For example, in a product group with T2, T3, and T4 optics; available at 5,000, 10,000, and 15,000 nominal lumen output packages; and available at 2700K and 3000K CCTs, the gonio testing (i.e., LM-79/distribution testing) *must* be conducted on the 15,000 lumen package and at 3000K for each of the T2, T3, and T4 optics.

This is in contrast with non-LUNA V5.1 requirements, where LM-79/distribution testing may be done on any available CCT, and often on any lumen package.

- **Products tested to produce LM-79/distribution reports must include the mounting option or accessory that results in the most upright (worst-case mounting) if the mounting structure is directly illuminated by the light source.**

Products seeking LUNA designation must explicitly include the worst-case mounting structures in the model number *if the mounting structure is illuminated by the light source*. This is required in cases where the mounting structure is a separately ordered option or accessory. This provision also extends to the LM-79/distribution testing.

Product images must be present in the PDF report of the LM-79/distribution test and must include and clearly display this worst-case mounting structure.

The product that is tested on a gonio meter is required to comply with the following:

- Must include the mounting structure *if the mounting structure is directly illuminated by the light source (for example, a non-pivoting yoke on a pole/arm-mounted decorative luminaire)*.
- If multiple mounting structures are available that would be illuminated by the light source, gonio testing must be conducted on the version of the mounting structure that results in the most upright. Applicants should include commentary in their

submitted scaling methodology on which mounting would provide worst-case performance in this respect. More information on this requirement can be found on page 20 of the [LUNA V1.0 Technical Requirements](#).

LM-79/Color Testing and Reports

- **LM-79/color report must be provided on the highest LUNA-eligible CCT at the highest available light output.**

For V5.1 Level 2 (family) applications, a test report must be provided on a product at the nominal highest and lowest CCT.

Under LUNA V1.0, applications containing products seeking LUNA designation require a test at the highest LUNA-eligible CCT (usually 3000K) and at the highest light output. Generally, this means that applications containing both products seeking LUNA and products not seeking LUNA require an additional LM-79/color report for the highest LUNA-eligible CCT.

For example, consider a family of products where the CCT offerings are 2700K, 3000K, 3500K, and 4000K nominally. For baseline V5.1 applications, the DLC requires sphere testing on at least one product at 2700K and another on at least one product at 4000K. If the 2700K and 3000K products are seeking LUNA designation, an additional sphere test on a 3000K product is also required.

- **LM-79/color reports for both highest and lowest CCT must be on the highest light output version of products at that CCT.**

For V5.1 applications, the required CCT testing can be done at any available lumen package.

For products seeking LUNA designation, the requirement is explicitly different. The lowest CCT and highest LUNA-eligible CCT product *must* be tested on the highest lumen output package available for that given CCT.

In practice, if testing for lowest CCT using the baseline V5.1 requirements is conducted on the lowest light output version of the product, an additional sphere test on the highest light output version of that lowest CCT will be required for LUNA designation.

Data Files and Images

- **All required LM-79 test report documents must provide associated data files.**
 - For LM-79/distribution tests, .ies files must be submitted for the gonio test (on the highest light output version of each optic, at the highest LUNA-eligible CCT being submitted).
 - For LM-79/color tests, .spdx documents must be submitted for each sphere test (on the highest light output version for one optic, at the highest and lowest LUNA-eligible CCT being submitted).
 - Optionally, .xml documents may also be provided in TM-33 format, but these do not replace required .spdx and .ies data.

- **.ies files, LM-79/distribution reports, LM-79/color reports, .spdx documents, and images of SPD and intensity distribution must be associated with the tested product in the application portal.**

All tests and data files must generate an appropriate corresponding image of the SPD (for LM-79/color reports) or intensity distribution (for LM-79/distribution reports) using the DLC's [LUNA Pre-submission Tool](#). You must associate these images with the corresponding model in your application form.

More information on the LUNA Pre-submission Tool can be found on [the DLC website](#), including a demonstration of the tool on the original [LUNA submission webinar](#).