

EULUMDAT and Absolute Photometry

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This document¹ describes how to generate and interpret an EULUMDAT file containing absolute photometric data.

Without any changes to the EULUMDAT file format specification, an EULUMDAT file representing absolute photometry can be interpreted as:

Item	Designation	Absolute Photometry Value	Notes
26	Number n of standard sets of lamps	1	1
26a	Number of lamps	-n (number of light emitters)	2
26b	Type of lamps	<Unchanged>	3
26c	Total luminous flux of lamps (lumens)	Luminous flux (lm) of luminaire	4
...			
30	Luminous intensity distribution (cd/klm)	<Unchanged>	5

Notes

1. Field 26. There can be only one standard set of lamps for absolute photometry, and the value is fixed at 1.
2. Field 26a. While the number of lamps 'n' is meaningless for absolute photometry, it may still be useful to indicate the number of light emitters, such as the number of LEDs. The value is therefore retained, but its sign is negative to indicate absolute photometry.
3. Field 26b. Type of lamp is just informative. It could be for example the ILCO OS code for a reflector lamp, or the manufacturer's name for a type of LED.
4. Field 26c. In accordance with the principles of absolute photometry, this field reports the measured luminous flux of the luminaire rather than the total manufacturer's rated lumens of the lamps.

An advantage of this interpretation for the luminaire manufacturer is that the reported luminous flux can be measured with for example an integrating sphere rather than a goniophotometer. This makes it possible to measure one luminaire with a goniophotometer to determine its luminous intensity distribution, and then measure multiple identical luminaires to obtain an average total luminous flux value.

5. Field 30. All values are stated in candela per kilolumen (cd/klm). The advantage is that there is no change to the existing format.

This interpretation is *fully compatible* with existing EULUMDAT photometric data files, and also with existing lighting design software programs as long as they do not perform range checking on field 26a. (This is unlikely, as the number of lamps is not required when interpreting the luminous flux distribution of a luminaire.)

Implementation

Given that no changes are required to the EULUMDAT file format specification, support for absolute photometry can be provided immediately. Responsibilities for the various parties include:

¹ This document is a joint proposal of Lighting Analysts Inc. (www.agi32.com) and DIAL (www.dial.de).

1. Photometric Testing Laboratories

- Use –n in field 26a to designate absolute photometric data reports. (This is a convention only.)

2. Luminaire Manufacturers

- Request EULUMDAT files with –n in field 26a for products requiring absolute photometry (primarily for solid-state lighting products, but also for lamps and luminaires with non-removable lamps).

3. Lighting Design Software Manufacturers

- Modify future version of their products to indicate EULUMDAT files with absolute photometric data.