

METRICS FOR THE DESIGN AND IMPLEMENTATION OF ROAD LIGHTING

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Abstract

1. Motivation, specific objective

Road lighting installations are designed to meet the quality criteria stated in national/international standards and recommendations such as CIE-115:2010. The main purpose of road lighting is to ensure that road users can travel safely and comfortably; it is therefore expected that the quality criteria are optimised to meet those needs, both at the time of installation and during the lifetime of the installation.

There are however many uncertainties in the current quality criteria.

- It is not known whether the existing quality criteria are sufficient and optimal to provide the necessary safety and comfort. One reason for this is that the empirical basis for the quantitative criteria is unknown.

- Values measured in the field after installation may not match the standard used as the target for design; the reason for discrepancy is unknown.

- It is not known the extent to which field measurements recorded at the point of installation are sufficient for their performance qualifications throughout the lifetime of the installation.

- Due to the emergency in energy supply, some public administrations are employing ad hoc changes in operation of road lighting: it is not known how this affects the safety of road users.

- The extent to which adaptive lighting applications are a solution in terms of safety and energy emergency is not yet known.

The direct aim of this workshop is to discuss the uncertainties of current road lighting guidance and define what needs to be done next. The long term aim is to produce a revision to CIE 115.

2. Methods

This will be a 90-minute workshop with three presentations to stimulate discussion. The workshop program is shown below.

Presentation 1: "Adequacy of current road lighting recommendations in real field applications" (10 minutes) *speaker proposal: Steve Fotios*

Presentation 2: "The differences between design and field measurements" (10 minutes) *speaker proposal: Valerie Muzet*

Discussion 1: The relevance of current standards and further research needed (40 minutes)

Presentation 3: "Examination of current practices and solution proposals due to energy emergency" (10 minutes) *speaker proposal: Dionyz Gasparovsky*

Discussion 2: What to do next (20 minutes)

3. Results

- The need for additional research studies and technical report update, especially within the scope of CIE 115
- Inconsistencies between design and implementation results for reasons such as estimation of road pavement properties in accordance with real conditions, difference of LED luminaire photometry compared to conventional luminaires
- Safety problems caused by turning off road lighting

- Suggestions for solutions that will not create a safety problem in the face of the energy crisis and therefore the desire to save energy

4. Conclusions

At the end of the workshop, it is aimed to define the deficiencies in providing road lighting in accordance with the real conditions, the research and technical committee studies that are currently being worked on or to be planned, and to determine a road map.