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Detailed Characterisation for Smart Dynamic Lighting

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Research output: Chapter in Book/Report/Conference proceeding > Article in proceedings > Research > peer-review



Overview

Fingerprint

Projects (1)

Abstract

Smart light is gaining ground with increased speed driven by the pursuit of enhanced comfort, to achieve energy efficiency by dimming and to mimic the natural rhythm of daylight. Currently, lighting sources are only characterized and measured at full load as regulations [1] only set requirements for this and for standby power. Consequently, the customers don't know the performance in dimmed and colour-tuned stages. Furthermore, problems of temporal light modulation typically increase with dimming. The questions are thus: How do the smart lighting sources perform when the light is dimmed and when the colour temperature is changed? Is there a need for more characterisation? The Danish ELFORSK project ISGES has measured detailed on many settings for different smart lighting sources used in respectively the domestic sector and the tertiary sector. Sep. 2022 was done a preliminary reporting from this project at LightSymposium 2022 [6] only including test of domestic lighting. This paper is comprehensive also including the tertiary sector and sector comparison. The analysis shows some smart lighting sources have substantial variation in luminous flux, energy efficiency and SVM and characterisation methods need to be included in the common standards as well as new data-sharing formats used by IES, ISO and CIE. This development is needed for reliable simulation of the smart dynamic lighting performance in a dynamic lighting setup.

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Conference

Conference	2023 IEEE Sustainable Smart Lighting World Conference & Expo (LS18)
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Period	08/06/2023 → 10/06/2023

Keywords

Temperature measurement

Support vector machines

Power measurement

Modulation

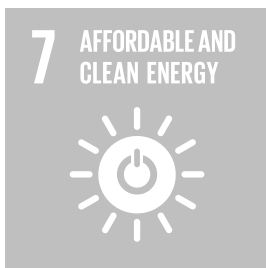
Rhythm

Energy efficiency


Regulation

UN SDGs

This output contributes to the following UN Sustainable Development Goals (SDGs)



Access to Document

 10.1109/LS1858153.2023.10170576

OpenUrl availability

 Full text

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Energy Efficiency
Engineering



Performance
Engineering



Tertiary Sector
Engineering



Lighting
Agricultural and Biological Sciences



Customers
Engineering



Color Temperature
Engineering



Characterization Method
Engineering



Luminous Flux
Engineering

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Projects

ELFORSK project 353-014 International standards for lighting, global energy savings

Thorseth, A., Dam-Hansen, C. & Corell, D. D.

01/09/2021 → 31/08/2023

Project: Research



Tertiary Sector



Energy Efficiency



Performance



Photometry



Vision

Cite this

APA

Author

BIBTEX

Harvard

Standard

RIS

Vancouver

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