

WORK PACKAGE 4

DELIVERABLE D.T4.1.4

Harmonization Action plan to facilitate the
Integration of Dynamic Lighting into EN 13201 and
Related Regulations

Version 1
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1. Introduction

According to the Technical Report CEN/TR 13201-1:2014 “Road lighting - Part 1: Guidelines on selection of lighting classes” [1] the normal road lighting class is defined as the class with the maximum value of luminance or illuminance at any period of operation. In the European standard EN 13201-2:2015 “Road lighting - Part 2: Performance requirements” [2] a road lighting class is defined by a set of photometric requirements aiming at the visual needs of certain road users in certain types of road areas under specified environmental conditions.

Adaptive lighting is defined as temporal controlled changes in luminance or illuminance in relation to traffic volume and/or traffic composition, time, or other influencing parameters of the surrounding environment. The application of adaptive / dynamic road lighting is recommended as a possibility to reduce energy consumption, light pollution, and CO₂-emission while keeping road safety and security at an appropriate level. However the current challenge is the missing European legal framework for the application of adaptive / dynamic road lighting.

Such a legal framework could be elaborated on an European level by the experts of a Technical Committee of the European Committee for Standardization (CEN, French: Comité Européen de Normalisation). For the selection of an appropriate lighting class as well as for the application of adaptive / dynamic lighting, it is desirable to harmonize the selection procedures based on (at the moment) different national regulations. This could be achieved by the regularly recurring revision of the European standards on road lighting.

2. Selection of an Appropriate Lighting Class and the Need for Harmonization

Guidelines on the selection of an appropriate lighting class are given in the Technical Report CEN/TR 13201-1:2014 [1], but national standards organizations are not bound to implement CEN technical reports. Some national standards organizations of countries participating in this INTERREG project have adopted the Technical Report CEN/TR 13201-1:2014 “Road lighting - Part 1: Guidelines on selection of lighting classes” [2] as national recommendation without specifying which of the two methods described in the report has to be applied. In other countries participating in this INTERREG project the national standards organizations have elaborated or are elaborating national standards on the selection of lighting classes.

For the selection of an appropriate lighting class as well as for the application of adaptive / dynamic lighting a number of parameters are considered which are generally related to the geometry of the traffic area under consideration, to the traffic use of the area, or to the influence of the surrounding environment. In different national regulations all or only some of the various parameters are regarded as fixed or time dependent. In certain regulations the roads are categorized and some of the parameters are associated intrinsically with the different types of road and not considered further. In cases of given limiting values linked to the selectable options, e.g. for design speed or for average daily or hourly traffic, these values differ from regulation to regulation. Different fixed or (over time) variable parameters which are considered in the various selection processes could lead to deviating lighting classes for in principle the same type of road.

To keep the road safety and security at the same appropriate level for all road users travelling through Europe, there is a need to harmonize the selection procedures across the different national regulations. This could be achieved by the regularly recurring revisions of the European standards in the field of light and lighting, and in particular for the lighting of roads.



3. Strategy and Action plan for Harmonization - a Proposal

Regarding the structure of the European Commission for Standardization the most important Technical Body in the field of road lighting is the Technical Committee CEN/TC 169 ‘Light and lighting’, and within the CEN/TC 169 the Working Group 12 entitled ‘CEN/TC 169/226 Joint Working group road lighting’. The different parts of the documents dealing with road lighting are elaborated by a small number of experts of respective task groups, and are presented to all members of the working group for discussion, circulation, preparation of draft standards for enquiries, and at a later stage for final voting.

The Technical Report CEN/TR 13201-1 “Road lighting - Part 1: Guidelines on selection of lighting classes” [1] has been prepared by some few experts of Task Group 1 of Working Group 12. This Technical Report is obviously not written in a style which would allow national standardization organizations to implement it as a national standard. For that reason a number of national standardization organizations (also of countries not participating in the INTERREG project) have developed national standards, usually numbered differently.

Although identical or very similar parameters are considered on national level for the selection of an appropriate lighting class as well as for the application of adaptive / dynamic lighting, the resulting classes could differ considerably for a given road traffic situation. This depends mainly on the manner of categorizing road situations and on the handling of fixed and/or time-dependent parameters. Recent discussions on a European level within CEN/TC 169 Working Group 12 have led to a request for harmonization in one way or another.

As a first step the selection procedures should be re-considered by experts within the responsible National Standardization Bodies, based on local/regional/national conditions and experiences. National opinions should be made available for discussion not only in CEN/TC 169 Working Group 12, wherever possible by active participation in the meetings of national delegates, but also at national, European, and even international lighting conferences (see table ‘Harmonization Action Plan’). During the preparation of the next revised Technical Report CEN/TR 13201-1 by the respective Task Group 1 of Working Group 12 (second step) delegated (by as many as interested National Standardization Bodies) experts should play an active role in the formulation of a harmonized selection procedure of lighting classes. It should be possible to come to a consensus of opinion regarding road categories and fixed or time dependent parameters to be considered for a particular road situation; expressed in terms of one of the lighting classes M for motorized Traffic, C for conflict areas, or P for pedestrian and low speed areas [2], to be applied for normal and adaptive / dynamic lighting. Where limiting values linked to selectable options, e.g. for design speed, differ from regulation to regulation forced by national legislation, examples could be worked out (as blue-prints) which could be added to a European standard in form of an informative annex.

4. References

- [1] CEN/TR 13201-1:2014 “Road lighting - Part 1: Guidelines on selection of lighting classes”
- [2] EN 13201-2:2015 “Road lighting - Part 2: Performance requirements”



Table: Harmonization Action Plan

Date	Venue	Event	Action
16./18.09.2017	Ljubljana	13 th LUX EUROPA 2017	Presentation 'The Interreg Project'
23.10.2017	London	Meeting of CEN/TC 169 WG 12 'Road lighting' at BSI	Discussion on possible revision of CEN/TR 13201-1
08./09.11.2017	Ulm	EW Fachtagung 'Straßen- und Außenbeleuchtung' 2017	Oral presentation on EN 13201 and EN 13032-5
28.02.2018	Brussels	International Specialist Event 'Dynamic Light in Public Spaces'	Presentation 'The need for harmonization'
24./25.05.2018	Berlin	CIE Workshop 'A New Vision of Visibility for roadway Lighting'	Participation in panel discussion
05./06.06.2017	Berlin	LiTG Tagung 'Stadt- und Außenbeleuchtung' 2018	Presentation 'DIN 13201-1, a proposal for Europe?'
July or August 2018	London	Meeting of CEN/TC 169 WG 12 'Road lighting' at BSI	Discussion/decision new work item 'Revision of CEN/TR 13201-1'
10./11.10.2018	Belgium	Plenary meeting of CEN/TC 169 'Light and lighting'	Discussion of work programme of CEN/TC WG 12 'Road lighting'
16.10.2018	Berlin	Meeting of DIN Committee FNL 11 'Exterior Lighting'	Discussion of work programme of CEN/TC WG 12 'Road lighting' on national level