SLOVENSKI STANDARD
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Cestna razsvetljava - 2. del: Zahtevane lastnosti

Road lighting - Part 2: Performance requirements

Straßenbeleuchtung - Teil 2: Gütemerkmale

Eclairage public - Partie 2: Exigences de performance

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ICS:

93.080.40	Cestna razsvetljava in pripadajoča oprema	Street lighting and related equipment

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English Version

Road lighting - Part 2: Performance requirements

Eclairage public - Partie 2: Exigences de performance

Straßenbeleuchtung - Teil 2: Gütemerkmale

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 13201-2:2026) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13201-2:2015.

This document includes the following significant technical changes with respect to EN 13201-2:2015:

a) Simplification of Table 1 for M lighting classes;

b) Simplification of Table 3 for P lighting classes;

c) Introduction of a 20 % minimum U_o for new installations;

d) Updated HS table;

e) Revised and updated terminology;

f) Revised and updated table notes;

g) New Annex D on lighting classes with comparable lighting levels.

Introduction

A 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 and environment. The needs can vary at different periods during the night and also in different seasons of the year, thus the recommendations can vary during these periods.

The purpose of introducing lighting classes is to make it easier to develop and use road lighting products and services in CEN member countries. The lighting classes have been defined with consideration of road lighting standards in these countries and the lighting classes defined in CIE 115:2010 (2nd Edition) aiming at harmonization of requirements where possible. However, specific circumstances concerned with the road layout, use and national approaches based on traditional, climatic or other conditions could require different values of the uniformities. It is not intended that all the classes describe in this standard are applied in a given country.

The M classes are intended for drivers of motorized vehicles for use on traffic routes, and in some countries also residential roads, allowing medium to high driving speeds.

The main lighting criteria of these classes are based on the road surface luminance of the carriageway and include the average luminance, the overall uniformity and the longitudinal uniformity for the dry road surface condition. Additional criteria relate to disability glare quantified by the threshold increment (TI)and the lighting of the surrounding areas quantified by the Edge Illuminance Ratio R_{EI}. An additional criterion, used in some countries, is the overall uniformity of luminance in a wet condition.

The C classes are also intended for drivers of motorized vehicles, but for use on conflict areas such as shopping streets, road intersections of some complexity, roundabouts and queuing areas, where the conventions for road surface luminance calculations do not apply or are impracticable. The lighting criteria are based on the horizontal illuminance and are expressed by the average and the overall uniformity. These classes have applications also for pedestrians pedal cyclists and low speed traffic.

The P classes or the HS classes are intended for

— Pedestrians and pedal cyclists on footways lying separately or along the carriageway of a traffic route and for pedestrian streets, parking places, schoolyards, etc.

— Low speed traffic on cycleways and on residential roads or pedestrian streets.

The maximum speed for low-speed vehicles is defined by national authorities for use on cycleways and other road areas lying separately or along the carriageway of a traffic route and for residential roads, parking places, etc.

The lighting criteria of the P classes are based on the horizontal illuminance on the road area and are expressed by the average horizontal illuminance and the overall uniformity U_o. Additionally, to improve facial recognition, an increased E_v uniformity can be expressed.

The lighting criteria of the HS classes are based on the hemispherical illuminance of the road area and are expressed by the average hemispherical illuminance and the overall uniformity of this illuminance.

The SC classes are intended as an additional class in situations where public lighting is necessary for the identification of persons and objects and in road areas with a higher than normal crime risk.

The EV classes are intended as an additional class in situations where vertical surfaces need to be seen in such road areas as toll stations, interchange areas, etc.

The requirements of the lighting classes reflect the category of road user in question or the type of road area. Thus, the M classes are based on the road surface luminance, while the C, P classes are based on the horizontal illuminance of the road area and HS classes are based on hemispherical illuminance. The

SC classes are based on semi-cylindrical illuminance, while the EV classes are based on the vertical plane illuminance.

Each series of lighting classes presents decreasing requirements in their order and form steps of lighting level.

The specified lighting levels are maintained levels which are defined as the design levels reduced by a maintenance factor to allow for depreciation (refer to 3.10). The required maintenance factor, or a maintenance regime that allows deduction of the maintenance factor, normally is included in tender specifications. The maintenance factor can be determined according to publication ISO/CIE 22012 TS:2019.

The light output of some light sources is sensitive to temperature. As photometric data are generally published considering a reference temperature of 25 °C, a correction factor is used for these light sources, if ambient temperatures are different.

Environmental aspects of road lighting are considered in Clause 7 in terms of daytime appearance, night time appearance and light emitted in directions, where it is neither necessary nor desirable. The purpose is to highlight criteria that can be included in tender specifications or similar, where relevant.

Installed luminous intensity classes for the restriction of disability glare and control of obtrusive light G*1, G*2, G*3, G*4, G*5 and G*6 are introduced in the informative Annex A. The use of G* classes is mentioned in Clause 5 for conflict areas and in Clause 7 on appearance and environmental aspects.

Installed glare index classes for the restriction of discomfort glare D0, D1, D2, D3, D4, D5 and D6 are introduced in the informative Annex A as well. These classes are intended mainly for road areas lighted for the benefit of pedestrians and pedal cyclists.

Additional items considered in the Annex A are the use of installed luminous intensity classes and obtrusive lighting.

Local lighting of pedestrian crossings is considered in the informative Annex B. The intention of local lighting is to attract the attention of drivers of motorized vehicles to the presence of the pedestrian crossing and to illuminate pedestrians in or at the crossing area.

For the C and P classes, disability glare conditions considering f_{TI} are described in the informative Annex C.

All photometric quantities are based on photopic photometry and confirmed by photometric measurements.

From an energy efficiency and environmental perspective, a lighting installation ideally has a lighting level that matches the minimum required value of the relevant lighting class, and meets all other relevant requirements, for instance uniformity, lighting of surrounding areas or additional classes (SC or EV). In that sense, the lighting levels specified in the tables are target values for minimum maintained levels.

NOTE Maximum lighting levels is normally included in tender specifications or national regulations.

When designing new road lighting installations, all the lighting requirements specified in Clauses 4, 5 and 6 are relevant, along with the requirements on environmental aspects as considered in Clause 7,

In areas characterized by reduced feelings of security or increased criminal activities, special considerations should be made. These relate to the design of the spatial conditions and the lighting of these areas, meaning there can be extended and differing requirements regarding the quality characteristics of the lighting compared to the requirements of this document. The size of the area to be lit and the improvement of uniformity to minimize fragmentation of illuminated areas are relevant. Additionally, only a moderate increase in illuminance above the highest maintained illuminance value specified in this document reduces any increased potential for aggression associated with higher illuminance levels. It is important to choose the appropriate spectrum for mutual recognition,