



# WIDE ANGLE

## Prevention of light pollution

Decree published in the French "Journal Officiel" of 28 December 2018

The decree on the prevention, reduction and limitation of light pollution was published in the French "Journal Officiel" on 28 December 2018.

This French regulation is a result of the Grenelle 2 Act and defines the rules applicable to outdoor lighting installations. Its purpose is to prevent, limit and reduce light pollution causing excessive disturbance to people, fauna, flora or ecosystems, or preventing the observation of the night sky.

This decree, composed of eight articles, identifies several installation cases, then specifies the limits applicable to these different uses in each context.

Implementing legislation is being prepared to clarify certain provisions of this decree, but the general rules are not expected to change substantially.

### ARTICLE 1 Definition of lighting installations

The decree applies to lighting installations which are split into seven categories of use. Thus, each new lighting project must be associated with one of these categories and comply with any associated requirements.

**The different types of installation can be summarised as follows:**

- a Outdoor public or private, including streets, roads and highways  
excluding vehicle lighting and signalling systems, tunnel lighting, lighting installations set up to provide aviation, rail, maritime and river safety
- b Illumination of heritage structures, the built environment, private and public parks and gardens
- c Open air or uncoverable sports facilities
- d Non-residential buildings: illumination of buildings and interior lighting directed towards the exterior of these buildings  
excluding toll stations
- e Open air or semi-covered car parks
- f Outdoor event lighting (temporary installations)
- g Outdoor work sites

### ARTICLE 2 Lighting curfews

This article defines the lighting curfews applicable to the (a), (b), (d), (e) and (g) categories, as well as certain specific cases covering these installations.

Type a) public or private outdoor installations, including streets, roads and highways, will only be subject to it if they are related to an economic activity in a confined space, category b) parks and gardens only if they can be closed.

In general, in these cases, lighting is authorised at the most not more than one hour before sunrise or resumption of activity, and not more than one hour after sunset or the halt of activity.

However, these requirements and provisions may be adapted for motion sensing systems or systems coupled to natural daylight.

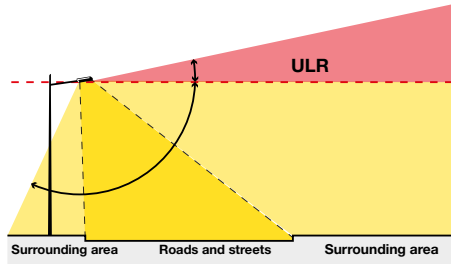
#### the ECLATEC solutions

**Several solutions are proposed:**

- Almost all lighting currently supplied by ECLATEC can be **factory-programmed** for these requirements
- ECLATEC has also designed **modules at the base of posts** which can be used to programme the curfews directly on site
- Similarly, the **detection systems** proposed by ECLATEC cater for some of the situations mentioned in the decree
- Of course, ECLATEC **remote management systems** are also a solution to these requirements.

### ULR

The ULR is the percentage of the light emitted from the luminaire above the horizontal.

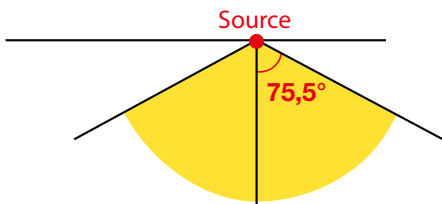


For type a) public or private outdoor installations, including streets, roads and highways, and type e) car parks, both in and outside urban areas, the lighting ULR must be less than 1%, and less than 4% on site, subject to compliance with the manufacturer's assembly conditions.

Within the boundaries of observation sites and nature reserves, for type b) illumination of heritage structures, the built environment, private and public parks and garden installations, the ULR in installation conditions is 0%.

### CIE flow code n°3

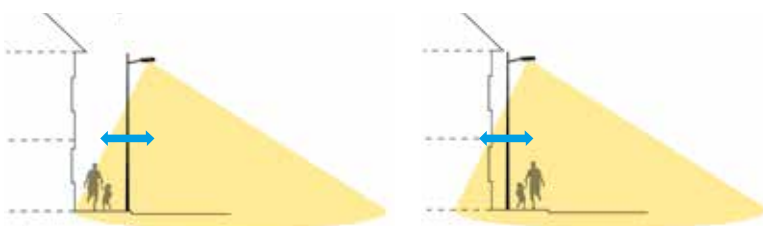
The CIE flow code defines the concentration of light emitted by the lighting.



The decree specifies that, for type (a) outdoor public or private installations, including streets, roads and highways, and type (e) car parks, inside and outside urban areas, 95% of the light flow emitted below the horizontal must be in a half-angle cone of 75.5°.

### Light trespass

Lighting installations must not emit excessive light inside dwellings regardless of its source.



### Colour temperature

This notion defines the "warmth" of light, with a neutral white at 4000 K, a cold, more or less bluish white above 4000 K, and a warm, more or less yellow/orange white below 4000 K.



For type a) public or private outdoor installations, including streets, roads and highways, type e) car parks, and type d) non-residential buildings, inside and outside urban areas, the colour temperature must not exceed a maximum value of 3000 K.

In nature reserves, for all types of installation (except g) outdoor worksites limited to 3000 K max.), inside and outside urban areas, the colour temperature must be less than or equal to 2400 K.

In the heart of national parks, for all lighting installations, the maximum colour temperatures are set at 2700 K in urban areas and 2400 K outside urban areas.

### the ECLATEC solutions

Most ECLATEC lighting is compatible with the limits specific to road, street, highway and car park lighting (cases a) and e)).

Some lighting versions cannot be used in these cases, while others require adapting: for example, these adaptations concern mechanical components (shapes and colours), the addition of accessories, lens design, choice of materials or a combination of these solutions.

To simplify, ECLATEC has grouped these adaptations, which differ depending on the models, under a single generic name: **ZENIUM technique by ECLATEC**.

### the ECLATEC solutions

It is not usually possible to determine light trespass at a distance.

That is why ECLATEC will provide formulas specifying the positioning limits that installers must respect when mounting on site in order to avoid light trespass.

Furthermore, as an option, ECLATEC offers **backlight shield** systems suitable for most lighting.



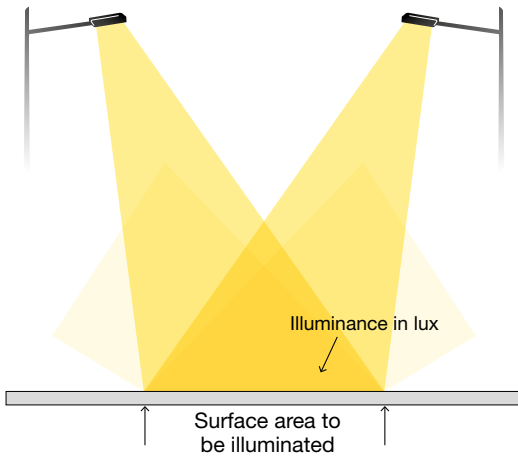
ORALED Rear backlight shield



BLS rear Backlight shield

## Allowable illumination levels

The installed illumination level (total light source illumination over the surface area to be lit, expressed in lumens per square metre), must comply with the following maximum values:  
The source illumination level is assimilated to the lighting



$$\text{Installed illumination level (lm/m}^2\text{)} = \frac{\text{Total illumination level emitted by the lighting (lm)}}{\text{Surface area to be illuminated (m}^2\text{)}}$$

emission level over the “surface area to be lit”; it is therefore expressed in lm/m<sup>2</sup>.

The illumination level can be reduced at night, during a time slot defined by the relevant authorities.

## The disabled

According to the corrected version of the decree of 29 May 2019 amending the decree of 27 December 2018 on the prevention, reduction and limitation of light pollution,

For external paths accessible to the disabled as well as outdoor car parks and their pedestrian pathways accessible to the disabled, the lighting does not exceed 20 lux.

This decree indicates an average illumination of 20 lux maximum, and the "Disabled" decree stipulates an average of 20 lux minimum:

The average illumination must therefore be equal to 20 lux ...

### the ECLATEC solutions

On communication of the project data (surface area to illuminate, site and location, special requirements), ECLATEC design offices will be able to confirm that the corresponding limits have been respected following analysis.

## ARTICLE 4 Specific geographical sites

**Additional requirements** are defined for specific geographical sites.

### Astronomical observation sites

Within the boundaries of these 11 specific sites

- The on site lighting ULR must be 0% for type (b) installations illuminating heritage structures, the built environment, and public and private parks and gardens
- The colour temperature for worksite lighting (g) may not exceed 3000 K

#### Article 6:

This article allows to waive these requirements if the implemented plan gives results at least equivalent to those related to this decree.

### Nature reserves

In nature reserves

- The on site lighting ULR must be 0% for type b) installations illuminating heritage structures, the built environment and public and private parks and gardens
- The colour temperature may not exceed:
  - 3000 K for worksite lighting (g)
  - 2400 K for all other types of lighting installation

### National Parks

In the **the heart of national parks** for all lighting installations, the colour temperature cannot exceed 2700 K in urban areas and 2400 K outside urban areas.

### the ECLATEC solutions

All ECLATEC lighting has colour temperatures compliant with requirements (2400 K to 3000 K) as standard or on request.

## Water feature lighting

No lighting installations should directly illuminate:

- Watercourses
- The public river domain
- Bodies of water
- Lakes and ponds
- The public maritime domain, both the land and sea parts

Except:

- for safety reasons for a specific event or authorisation to temporarily occupy the public maritime or river domain
- port handling or industrial, commercial and fishing facilities, including the body of water immediately adjacent to the facilities, within the public maritime and river domain

In order to limit the visibility of the lighting from the sea and the beach, and to only illuminate only the useful land surface area, the lighting will be directed facing away from the public maritime domain and/or fitted with a masking system.

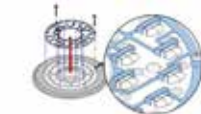
## Skybeams, lasers and similar lighting systems

Skybeam type installations with a static or moving beam with an illumination level in excess of 100,000 lumen and laser beam installations are prohibited in natural areas and astronomical observation sites (unless necessary for observation).

In certain areas, the Prefect may prohibit skybeams in excess of 100,000 lumen and laser beams, either temporarily or permanently, to protect wildlife.

### the ECLATEC solutions

Backlight shield devices are available and can be adapted to most lighting.



ORALED Rear backlight shield



BLS rear backlight shield

## ARTICLE 5 installation control technical data

The installation manager must be able to supply the lighting and installation specifications during an inspection.

Some data is supplied by the lighting manufacturer:

- ULR (in %) of the lighting,
- CIE flow code n3 (in %) of the lighting,
- Nominal source colour temperature (in K),
- Power (in W) of the lighting at full power,
- Nominal source illumination level (in lm) at full power.

The manager must also be able to prove the date the lighting was installed and provide evidence to prove that the installations comply with Articles 3 and 4.

For the other requirements defined in Article 3, the inspection may be carried out by measurement (colour temperature) and calculation (average installed illumination level, CIE flow code n° 3).

### the ECLATEC solutions

Since 1st April 2019, ECLATEC provides data specific to supplied lighting, both on the acknowledgements of receipt of orders but also on two flashcode stickers (the first attached to the lighting, the second one to be placed at the foot of the mast or on the register).

ECLATEC will supply a model register to record this information on request.

## ARTICLE 6 waiver for astronomical observation sites

This subject is dealt with in Article 4.

The decree of 25 January 2013 on the night lighting of non-residential buildings, covering both indoor lighting emitted towards the outside of these buildings and the lighting of building façades in order to limit light pollution and energy consumption, is repealed on the day following the publication of the decree.

The 2013 decree is thus included in this decree, it covers type d) installations, with the curfew conditions from article 2, and the installed illumination levels from article 3.

French decree of 29 May 2019 amending the decree of 27 December 2018 on the prevention, reduction and limitation of light pollution also clarifies the curfew conditions (extinction at the latest at 1 a.m.)

### 28 December 2018:

Publication of the order in the French "Journal Officiel"

### On 29 December 2018:

- Repeal of the order of 25 January 2013
- Curfew conditions for type d) non-residential building lighting
- Prohibition of skybeams and equivalent in excess of 100,000 lumens in protected areas

### As of 1st January, 2020:

- Regulations applicable to all new installations (ULR, Tc, flow code, ...)

#### For existing installations:

- Reduction of ULR by adjustment where possible
- Possibility of prefectoral orders in special areas

### As of 1st January 2021:

Imposed lighting curfews (art.2, I, II, IV and V)

### As of 1st January 2025:

Removal of all lighting which has an ULR greater than 50% (globes but not only)