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ATP

· ASTROTURISM ·



# Let's **preserve** our sky heritage together

The **contemplation of nature** has been a constant human endeavor, and stargazing continues to represent a profound quest for both philosophical and scientific answers. Today, an increasing number of municipalities away from major urban centers are finding in **astrotourism** an ecological way to boost their economy and leverage their unique locations.

Astrotourism involves visiting regions far from major light pollution sources to enjoy **dark skies** and star observation. For towns looking to offer astrotourism opportunities, it's essential to have a **customized outdoor lighting project** that ensures safety, comfort, and, at the same time, preserves the darkness of the night sky.





# Tailored **solutions** for astrotourism projects

Safe lighting and dark skies

Lighting designed to enable astronomical observation





# What is **light pollution?**

Light pollution is the undesired illumination of the night sky, primarily caused by three factors: **excessive luminaire power, light glare** resulting from ground reflection, and the percentage of **blue spectral components** in the light source.

Today, except in certain protected areas, most urbanized territories lack a **dark sky**. On the contrary, there is a noticeable nocturnal glow caused by **poor planning in lighting** projects, leading to unnecessary light dispersion in the atmosphere.



# What are its causes?

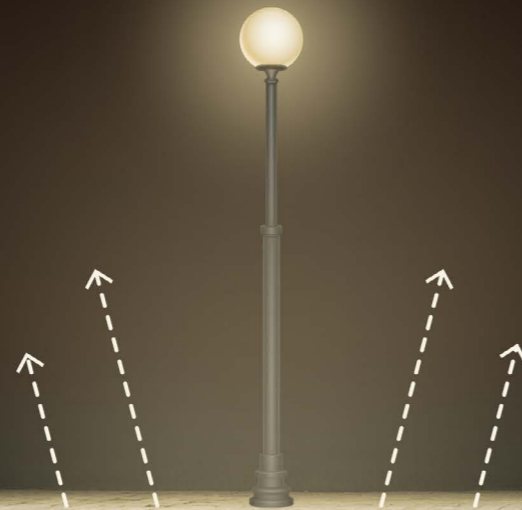
## LUMINAIRE POWER

Excessive power generates light pollution due to the unnecessary scattering of excess light. This **over-illumination** causes light to escape beyond the areas that should be illuminated, reaching the sky and dispersing in the atmosphere.



## LIGHT GLARE

The reflection of LED light on the ground contributes to light pollution by generating an effect called **"light glare."** When light emitted by LED luminaires reaches the ground, some of this light is reflected and scattered in multiple directions.



## CCT

Cold correlated color temperatures (CCT) above 3000 K tend to generate more light pollution than warmer ones. This is because cold light contains a higher **proportion of blues**, which disperse more easily in the sky.

PC AMBER 1800 K 2200 K 4000 K



## Effects of light pollution

Light pollution results in the wastage of a significant amount of **energy**, affects the development of **biodiversity** and the behavior of nocturnal animals and plants, and disrupts human **circadian rhythms**, affecting health.

## How can we control it?

Mitigating this type of pollution requires **custom lighting projects** with the right power and the most suitable optics to achieve maximum efficiency. The use of dimmable LED lighting with ultra-warm CCT and the implementation of intelligent systems can help us move closer to this goal.



# Spectral radiance: a key concept

Cold color temperatures in lighting (above 3000 K) tend to generate more light pollution due to their higher **proportion of blue light**, which disperses more easily in the atmosphere.

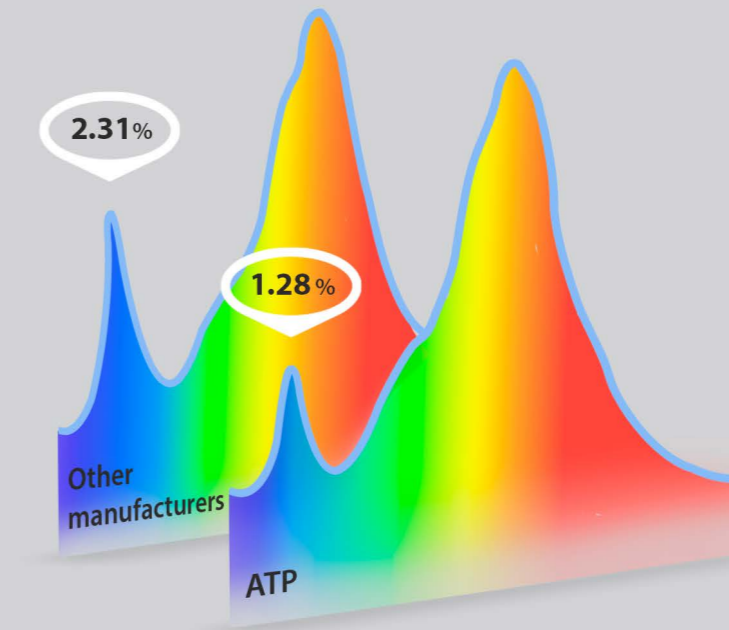
In contrast, warm color temperatures (below 2700 K) typically contain a lower proportion of blue light and **more red and orange tones**, which scatter less in the night sky, resulting in reduced light pollution.

To determine the exact percentage of blue emitted by a light source, it is necessary to consult its **spectral radiance** data at short wavelengths (below 500 – 440 nm, that is, blues).

Two luminaires from different manufacturers with the **same warm color temperature** may have **different amounts of blue** in their spectral radiance, so it is always advisable to ensure that this component is as low as possible.

# 44.6 %

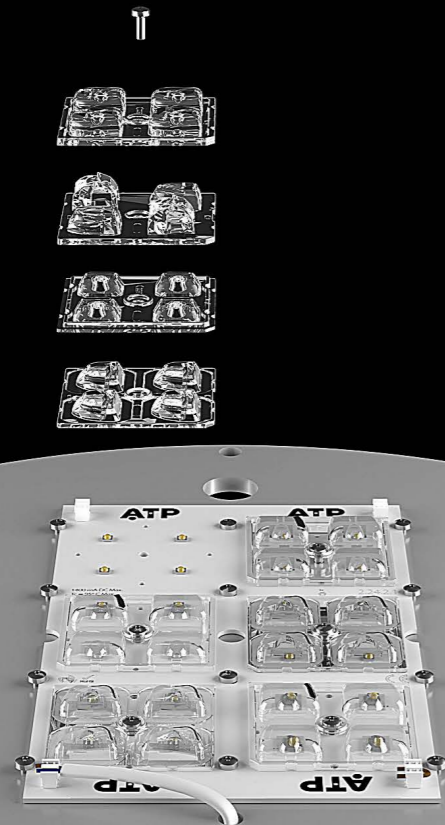
less spectral radiant flux below **440 nm** in ATP products



Color temperature analyzed:  
**2200 K**



# LED technology **optimized** for each project



## CUSTOM OPTICS AND POWER LEVELS

At ATP, we design LED solutions optimized with the **right light levels** to ensure safety while using **optics** designed to direct light exclusively where needed, reducing upward light output ratio (ULOR).

The combination of customized optics, adjusted light levels, **ultra-warm color temperatures**, and **remote management** solutions to reduce power during off-peak hours allows us to control light dispersion.



Custom ATP project

Other manufacturers



# Recommended color temperatures for

For astrotourism projects, we at ATP Lighting recommend our ultra-warm color temperatures of **2200 K**, **1800 K**, and **PC Amber**, all with a low percentage of radiant spectral flux below 500 nm wavelength (blue frequency).

The choice of a specific color temperature depends on the zone's level of protection, specific color rendering needs, and customer preferences.





# Starlight certification



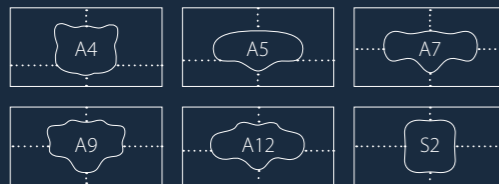
**Starlight** certification recognizes areas with exceptional night sky quality and promotes sustainable **stargazing tourism** based on environmental conservation. This certificate has become an important draw for astronomy enthusiasts and an **economic revitalization** avenue for municipalities.

Our custom LED lighting projects with **ultra-warm color temperatures** have proven their value in obtaining Starlight certification. In recent years, numerous municipalities that have implemented ATP projects have achieved exceptional **night sky quality** and received this distinction.

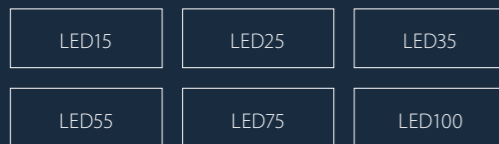


# Circular Classics

## Optics

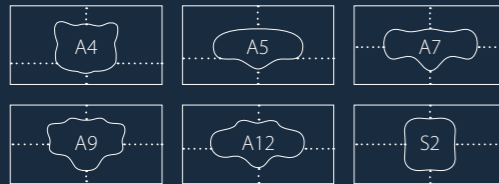


## Power

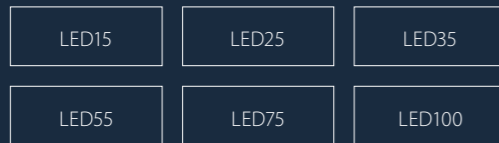


# Square Classics

## Optics



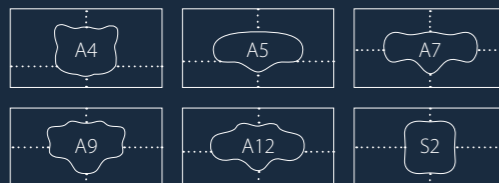
## Power



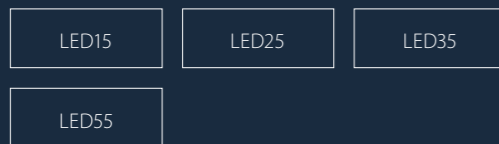


# Hexagonal Classics

## Optics



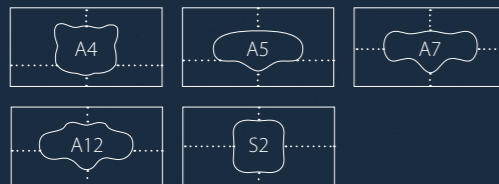
## Power



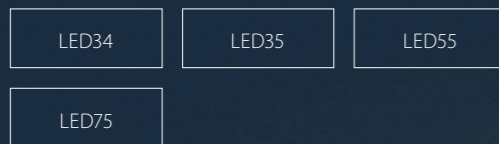
# KitLED®

## S and M

### Optics



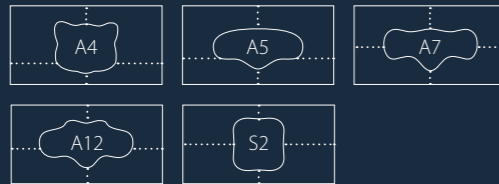
### Power



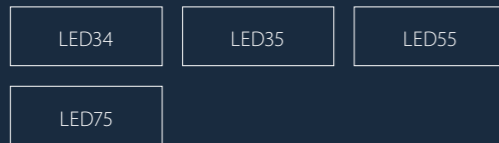


# E series floodlights

## Optics



## Power



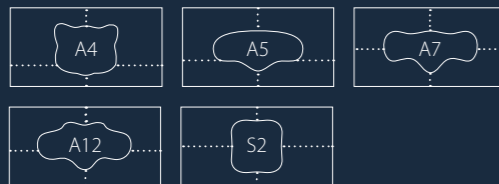
# Coastal astrotourism





# Alfa series

Optics

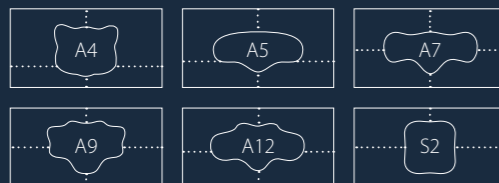


Power

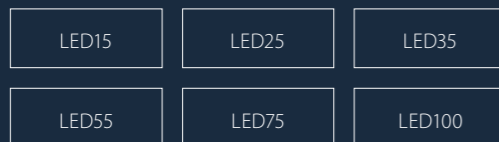


# Pescador series

## Optics



## Power





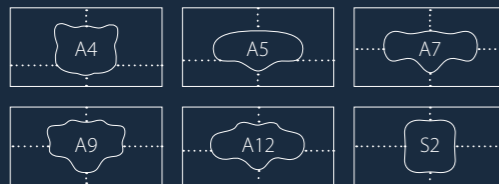
# Modern alternatives for astrotourism



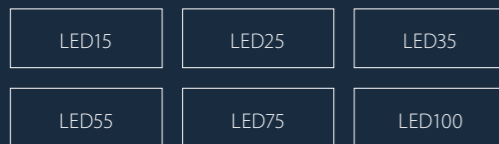


# Cónica series

## Optics



## Power



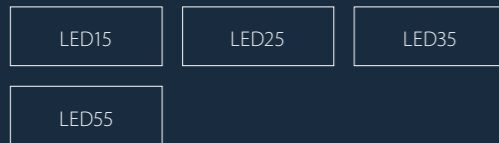


# Enur Micro series

## Optics



## Power





# Success stories





## JARQUE DEL VAL

The Balcony of the Stars in Jarque de la Val, Teruel, is a **benchmark in astrotourism**. ATP replaced high-sky-emission cold LED lights (3500 K) with LED PC Amber, significantly reducing light pollution.

The renovation included solutions such as our **KitLED® S** and **Villa XLA** luminaires with Confort Diffuser®, ensuring safety and visual ease for village visitors.

The installed **PC Amber** lighting yields radiant spectral flux below 500 nm wavelength (blues) of only 0.73%, more than 25 times lower than the previous color temperature.





## SIURANA

Siurana, an iconic village in Tarragona, Spain, is a light pollution-protected area (E1) and required specific lighting to ensure **dark skies**.

**E-Series S LED PC Amber floodlights** (17 W) were used, with radiant spectral flux below 500 nm wavelength of 0.73%, respectful of the sky and wildlife.

The floodlights' **adjustable mount** allowed them to be installed on the classic wrought iron frames that exist in the village, which the local administration wanted to preserve for their contribution to the area's **identity**.





## PROVINCE OF SORIA

This comprehensive lighting renovation project executed by the Soria Provincial Council in 70% of the province's municipalities was recognized with the **International Starlight Award**.

This award acknowledges the implementation of lighting zoning and an unprecedented commitment to efficiency, safety, and **light pollution** reduction, supported by the La Palma Declaration.

**ATP Lighting** was the main provider of customized lighting solutions to meet the stringent criteria for **preserving the night sky and astronomy** posed by this lighting project.

