



## OBSTRUCTION LIGHTS for

POWERLINE



TELECOM



CHIMNEY



AIRPORT



WINDTURBINE



CRANE





# RELIABILITY IN OBSTRUCTION LIGHTING



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obsta

## Company history

OBSTA, a subsidiary of CITEL group ([www.citel.fr](http://www.citel.fr)) is part of an industrial group that engineers, manufactures and sells obstruction lights for transmission lines, telecom, broadcasting towers and all kind of obstacle to air navigation since more than 30 years. Our obstruction lights are manufactured by us compliant with ICAO annex 14 chapter 6 (International Civil Aviation Organization) recommendations and the FAA (Federal Aviation Administration).

OBSTA has manufacturing facilities in France and has sales offices located in France, Germany, USA, and China through Citel.



## A long history

Before joining Citel in the years 90, Obsta was part of the company Claude that was manufacturing all kind of lamps. This company was created by Georges Claude (September 24th 1870 – May 23th 1960) a French physicist and chemist :



**1902** : Extraction of rare gas from the air (neon, argon, xenon..) and creation of the company Air liquide

**1910** : Invention of the first modern patented discharge lamp tube and creation of Claude company manufacturing all kind of discharge and incandescence lights

**1960** : Invention of the first balisors for transmission lines

**1992** : Bought by Citel manufacturing gas tube and surge protection

**2003** : New led NAVILITE obstruction lights red fixed

**2008** : New obstacle light with linear optic for discharge and LED lights.

**2012** : New medium and high intensity LED lights.

## Specialist in obstruction lighting

Over the years, three large product families (neon xenon and led type) have been developed in the respect of the most severe standards, requested by our customers. OBSTA lights are designed in the respect of the latest international standards that are ICAO and FAA. They constitute a complete range of low intensity or L-810, medium intensity or L-865/L-864 and also high intensity obstruction lights, ideal for broadcasting towers, telecom mast, transmission lines, stacks and wind turbines.

- Cold neon discharge lights,
- pure cold neon discharge 5 and 13 turns OBSTA® HI STI & STI,
- 33 & 49 turns BALISOR® (conductor warning lights) red fixed obstruction lights.



Led NAVILITE® red fixed obstruction lights (low intensity and L-810) since 2003 The NAVILITE series is dedicated to night only obstruction lights especially for telecom mast, buildings close to airports and all kind of obstacle below 45 meters high. Completely molded with 64 leds divided in 16 independent led circuits, they are ideal for all kind of obstacle



- Led and Xenon OBSTAFLASH : OBSTAFLASH white and red flashing for high structures medium intensity type A and B/C, L-865/L-864, L-865, L-864 and L-810.
- High intensity type A and B

## Test facilities

In order to test its products internally for standards compliance and to evolve toward greater reliability OBSTA has several test sites (France, USA) equipped with :

- Photometric band with visible and infrared capability
- 1.2/50-8/20 $\mu$ s hybrid wave generators up to 20 kV/10 kA
- HT digital Oscilloscope fast
- Material for test environment (damp heat, climate, shock)



## An international company

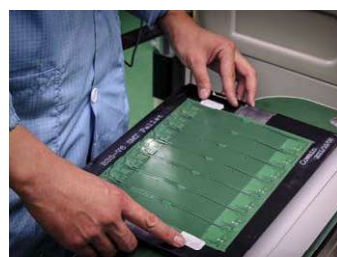
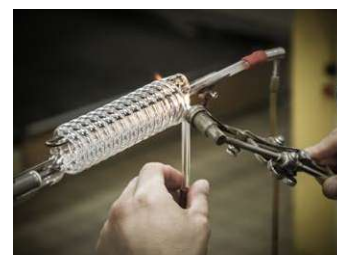
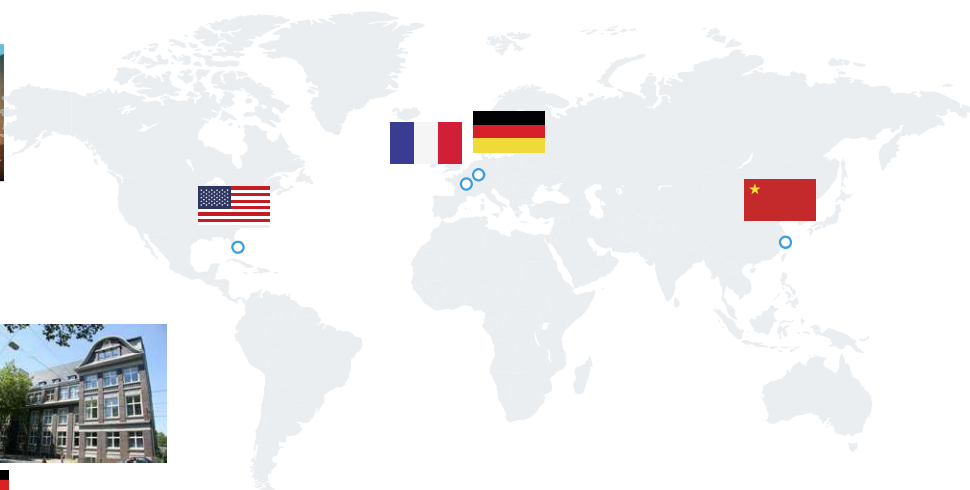
Obsta is part of CITEL group with international commercial subsidiaries.



  
**Sèvres -**  
Head Office - France and  
Export Sales Office



  
**Reims -**  
Production plant  
and logistics platform





Any object which could represent a hazard for low-flying aircraft must be marked by beacon lights. The ICAO (International Civil Aviation Organization - appendix 14, Chapter 6) and the FAA (Federal Aviation Administration - USA) lay down internationally-applicable rules on the characteristics of the beacons and their installation.

Some points of the regulations (depending on the type of obstacles which must be marked), and the corresponding installation rules, are given below.

| Intensity | Color | Type |       | flashes per minute           | Night (Cd)  | Day (Cd)       | Twilight (Cd) |
|-----------|-------|------|-------|------------------------------|-------------|----------------|---------------|
|           |       | ICAO | FAA   |                              |             |                |               |
| LOW       | Red   | A    | -     | Steady                       | ≥ 10        | light OFF      |               |
|           |       | B    | L-810 | Steady                       | ≥ 32,5      |                |               |
| MEDIUM    | Red   | B    | L-864 | 30 Epm (FAA)<br>20-60 (ICAO) | 2,000 ± 25% | -light OFF     |               |
|           |       | C    | -     | Steady                       | 2,000 ± 25% |                |               |
|           | White | A    | L-865 | 40 Epm (FAA)<br>20-60 (OACI) | 2,000 ± 25% | 20,000 ± 25%*  | 20,000 ± 25%* |
|           |       |      | L-866 | 60 Epm (FAA)<br>20-60 (OACI) | 2,000 ± 25% | 20,000 ± 25%*  | 20,000 ± 25%* |
| HIGH      | White | A    | L-856 | 40 Epm                       | 2,000 ± 25% | 200,000 ± 25%* | 20,000 ± 25%* |
|           |       | B    | L-857 | 40 Epm                       | 2,000 ± 25% | 100,000 ± 25%* | 20,000 ± 25%* |

\* : FAA requires a flash duration of 100ms max with Blondel-Rey formula for effective intensity

## Extract from annex 14 ICAO

### Extract from table 6-3. Characteristics of obstacle lights

#### Position of the obstruction lights

6.3.11 One or more low-, medium- or high intensity obstacle lights shall be located as close as practicable to the top of the object. The top lights shall be so arranged as to at least indicate the points or edges of the object highest in relation to the obstacle limitation surface.

6.3.12 **Recommendation** - In the case of chimney or other structure like function, the top lights should be placed sufficiently below the top so as to minimize contamination by smoke etc...

6.3.14 In the case of an extensive object or of a group of closely spaced objects, top lights shall be displayed at least on the points or edges of the objects highest in relation to the obstacle limitation surface, so as to indicate the general definition and the extent of the objects. If two or more edges are of the same height, the edge nearest the landing area shall be marked. Where low-intensity lights are used, they shall be spaced at longitudinal intervals not exceeding 45 m (150ft). Where medium-intensity lights are used, these shall be spaced at longitudinal intervals not exceeding 900 m (2950ft)

6.3.15 **Recommendation** - When the obstacle limitation surface concerned is sloping and the highest point above limitation surface is not the highest point of the object, additional obstacle lights should be placed on the highest point of the object.

6.3.22 The number and arrangement of low-, medium- or high-intensity obstacle lights at each level to be marked shall be such that the object is indicated from every angle in azimuth. Where a light is shielded in any direction by another part of the object, or by an adjacent object, additional lights shall be provided on that object to be lighted. If the shielded light does not contribute to the definition of the object to be lighted, it may be omitted.

In order to help you choosing the proper light you need, you will find below the most common configurations.  
The recommendations and rules mentioned below **are only given for information based on the ICAO recommendations, and ICAO aerodrome design manual.**

### Night time marking (Red only)

The night time marking is done with **red obstruction lights**:

- low intensity type A or B (L-810)
- and/or medium intensity type B (L-864)

### Day time marking (White flashing only)

The day time marking is done with **white flashing obstruction lights**:

- medium intensity type A (L-865)
- or high intensity type A or B (L-856, L-857)  
(For obstacle below 150 meters the use of white strobe flashing light during day time eliminate the need to paint the obstacle with red and white stripes).

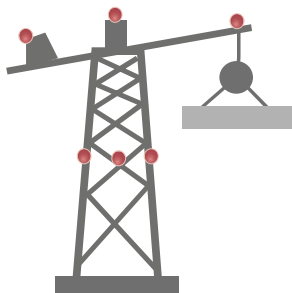
### Day and night time marking (White flashing or Dual Color)

The day and night time marking can be realized by using either:

- white medium intensity light working day and night
- dual color lights, white flashing during day time and red during night time

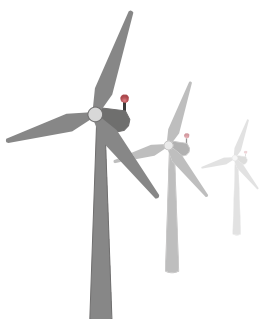


## CRANE (see diagram p 16)



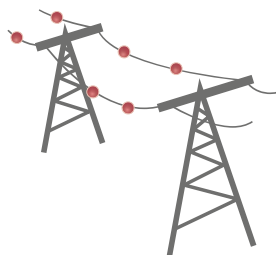
| Height                | Night marking only                                                                                                                                                       | Day marking                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Below 45m (150ft)     | Low intensity type A at the top of the crane-top and at each extremity of the jib and counter jib.<br><br>1 medium intensity type B (L-864) at the top of the crane-top. | 1 medium intensity dual color at the top of the crane-top. |
| 45m (150ft) and above |                                                                                                                                                                          |                                                            |
| 105 m and above       |                                                                                                                                                                          |                                                            |

## WIND TURBINE (see diagram p 17)



| Night marking only                      | Day and night marking                                     |
|-----------------------------------------|-----------------------------------------------------------|
| 1 or 2 Medium Intensity type B ( L-864) | 1 or 2 Medium Intensity dual color type A+B (L-865/L-864) |

## TRANSMISSION LINES (see diagram p 18)



| Height             | Night marking only                                                              |                                                                                                                                                         | Day marking only                                           |
|--------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Poles              | Same configuration than in the first case «pole and tower»                      | If it is not possible to install a light on the poles, 2 Balisors placed on each side of the pole at 10m (30ft) maximum and placed on the highest cable | Same configuration than in the first case «pole and tower» |
| High voltage cable | Balisors every 70m (230ft) near airport and every 105m ( 350ft) in other cases. |                                                                                                                                                         | Warning spheres of 600mm diameter (2ft) every 30m (100ft)  |

In the case of an extended obstacle (wind turbine farm, cranes, etc...) the beacons need to be synchronized.  
Beacons need to be backed up with a 12hour battery life in case of a loss of the main power line.