

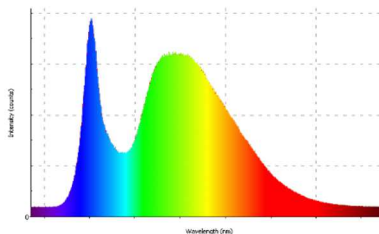
Photobiological safety – Blue light hazard

At Delta Light we always use the Risk group given by the LED manufacturer, meaning that the risk of the complete luminaire is always lower or equal than the risk given in the manual.

The European standard for Photobiological safety (EN 62471) describes a measuring method to determine whether a lamp or luminaire carries a risk of eye and skin contact.

Given the high luminance resulting from many high power LED's, there is a risk of eye damage. That is why it is important that the biological safety is measured correctly and published clearly.

LED light contains almost no light from the ultraviolet or infrared spectrum, and therefore is not dangerous to the skin. It does however provide a high peak in the blue spectrum which (when looking into for a long period of time) may result in damage at the retina, the so called blue light hazard.



Whether the risk is real depends on several factors

Luminance of the LED

- Colour temperature
- Light distribution
- Distance to the luminaire

When the LED is placed in a luminaire, it is located behind a lens, reflector or diffusor, which is levelling the luminance.

To allow users to estimate the risk, the standard EN 62471 determines that the lamps and luminaires must be divided in 4 risk groups

- RG0: there is no danger
- RG1: the risk is limited, no more than 10 000 seconds of viewing into the light source is allowed without damaging the eye
- RG2: up to 100 seconds of viewing into the light source is allowed without damaging the eye.
- RG3: up to 0,25 seconds of viewing into the light source is allowed without damaging the eye.

If light sources belong to RG2 or higher, this must be indicated on the luminaire and the manual.

To know the exact risk group of the complete luminaire there are extra tests needed. **Note that the blue light hazard risk will in most cases be lower than the one mentioned in the manual.** As we use the Risk of the LED and not the one of the complete luminaire.

Please consult your Delta Light contact in case that more details of the luminaire risk group might be required.