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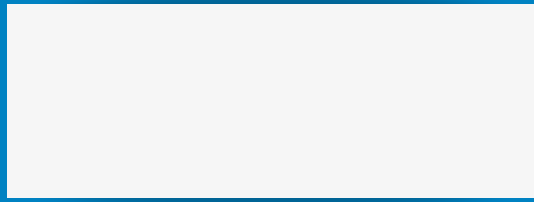
*Advantages, technology, photometry, backlight or straylights, how to avoid it.*

# APPLICATION NOTE

## *Asymmetrical lenses*

# ASYMMETRICAL LENSES

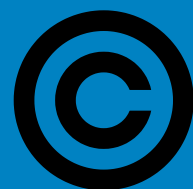
## *Advantages*



Rectangular beam



Recessed optic



Patented technology



UFO45A simulation

Excellent light distribution on the wall, starting right from the beginning of the wall.



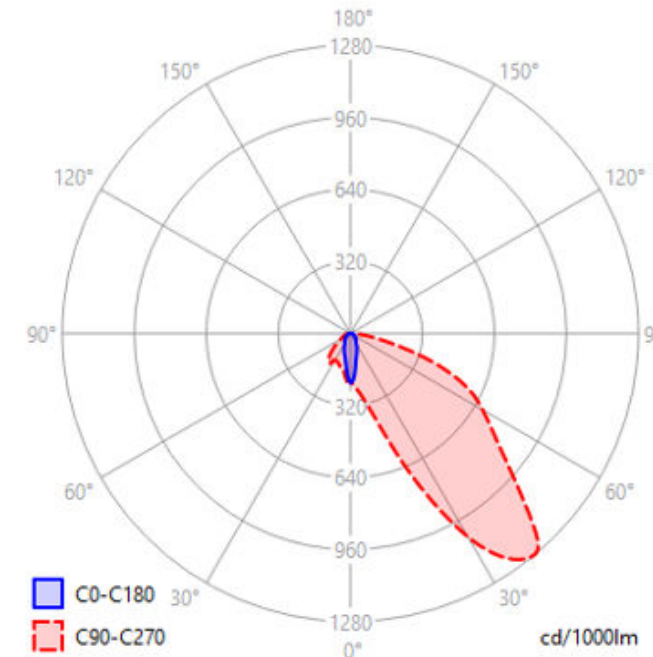
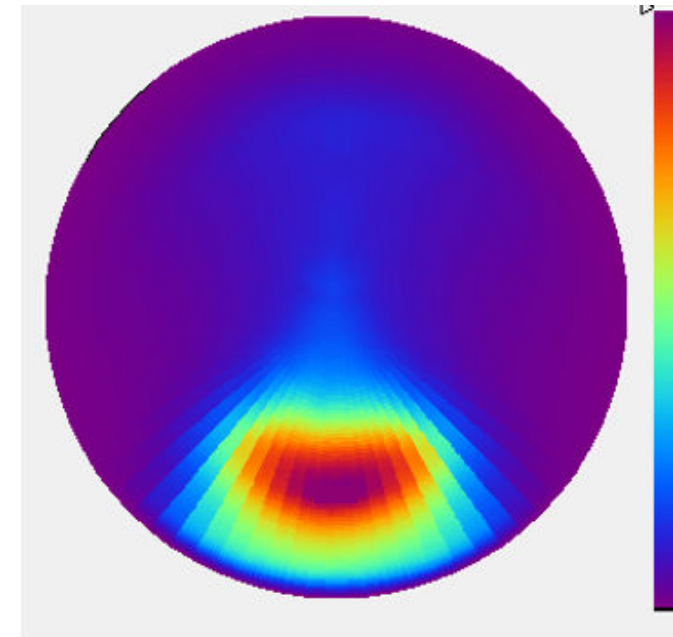
# ASYMMETRICAL LENSES

## Photometry

### UFO45A

**LED : Citizen - Ref : CLU702**

- LOR front (wall) – 76.9 %
- Intensity peak front – 1130 cd/klm

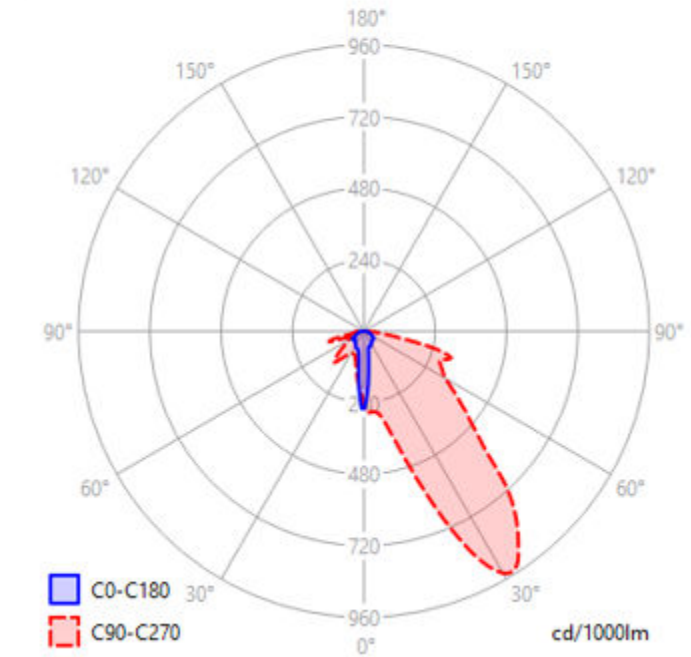
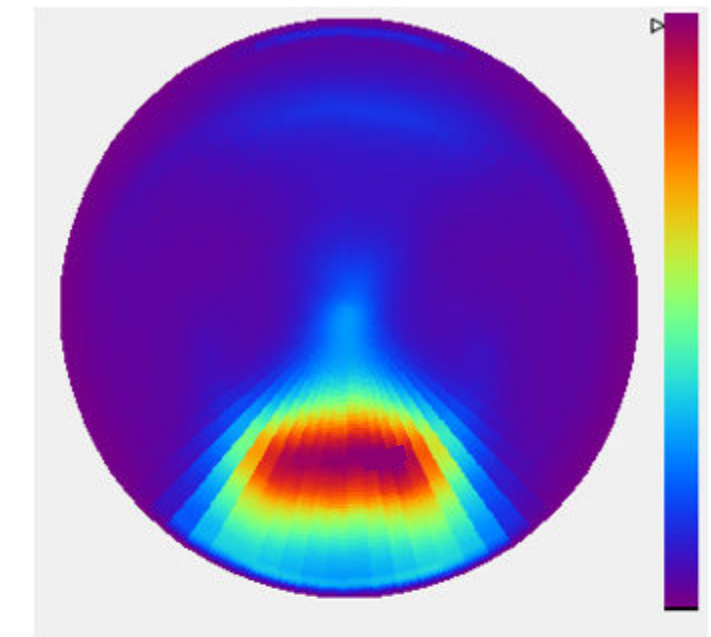


### LLC25A

### LLC25A

**LED : Cree - Ref : XHP35B HI (flat top)**

- LOR front (wall) – 77.6%
- Intensity peak front – 1279 cd/klm



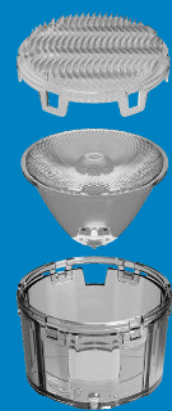
### UFO45A



# ASYMMETRICAL LENSES

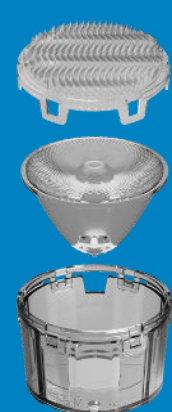
# Photometry

## LLK59CW59A\*

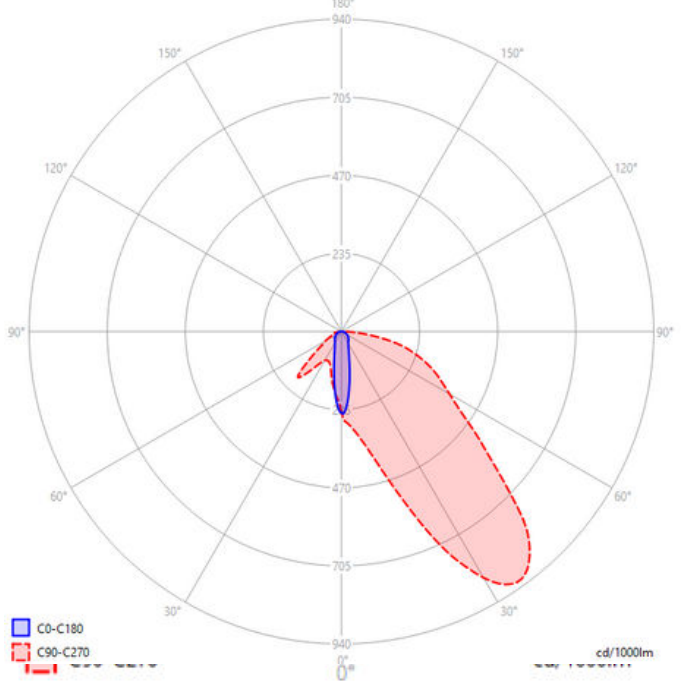
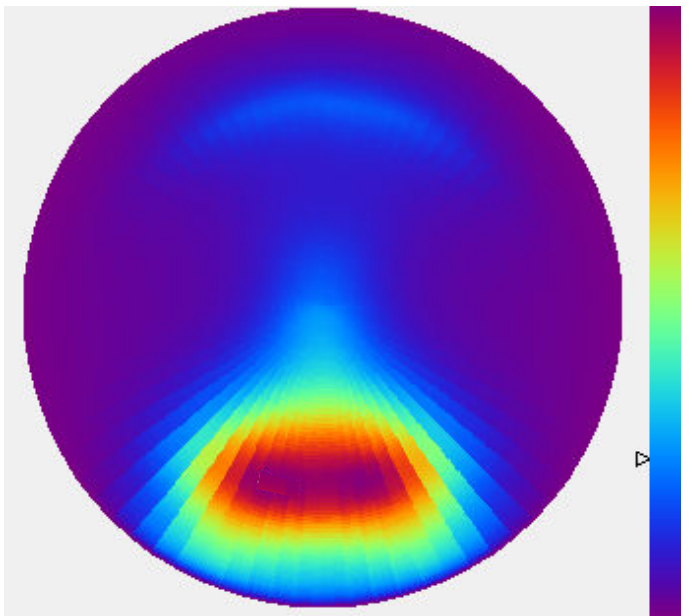


- LED : OSRAM Ref : OSTAR STAGE S2WN**
- LOR front (wall) – 82%
  - Intensity peak front – 953 cd/klm

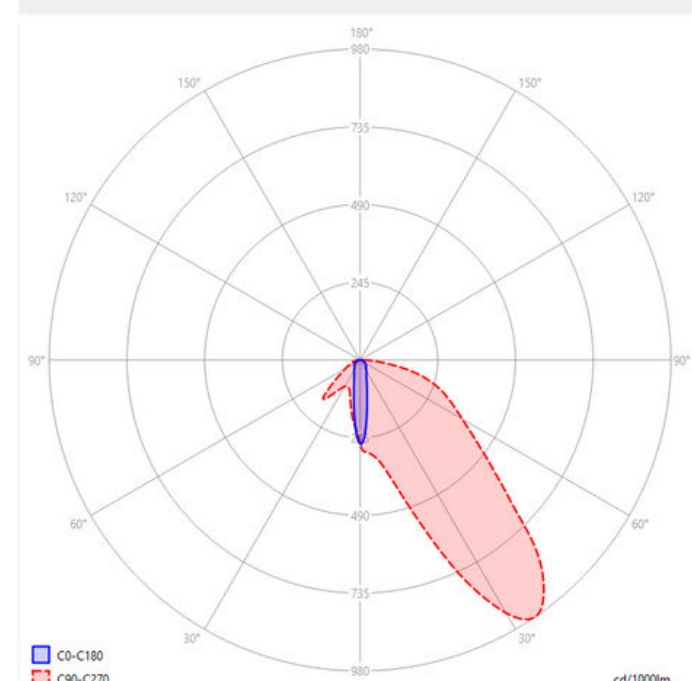
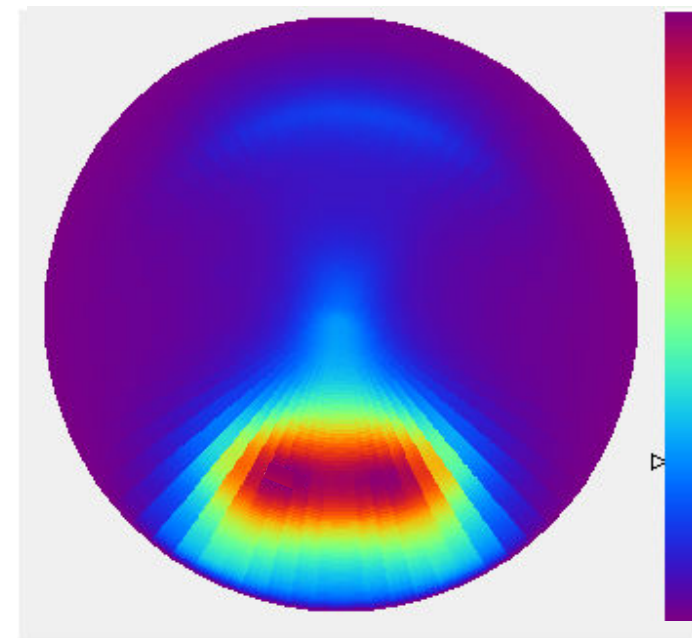
## LLK59NW59A\*



- LED : OSRAM Ref : OSTAR STAGE S2WN**
- LOR front (wall) – 81%
  - Intensity peak front – 1026 cd/klm



LLK59CW59A\*



LLK59NW59A\*







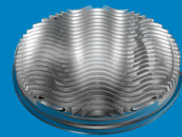
**ARCHITECTURAL APPLICATION EXAMPLE**



# ASYMMETRICAL LENSES

For the light to start as close to the wall as possible from the ceiling, the ideal distance from the wall is 1 meter.

## UFO45A

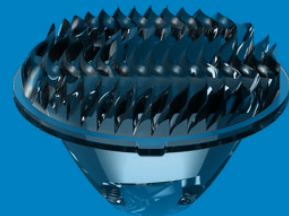


## & LLK59NW59A\*

## & LLK59CW59A\*

The spacing of the luminaires should be equal or up to 1.2x to the distance from the wall.

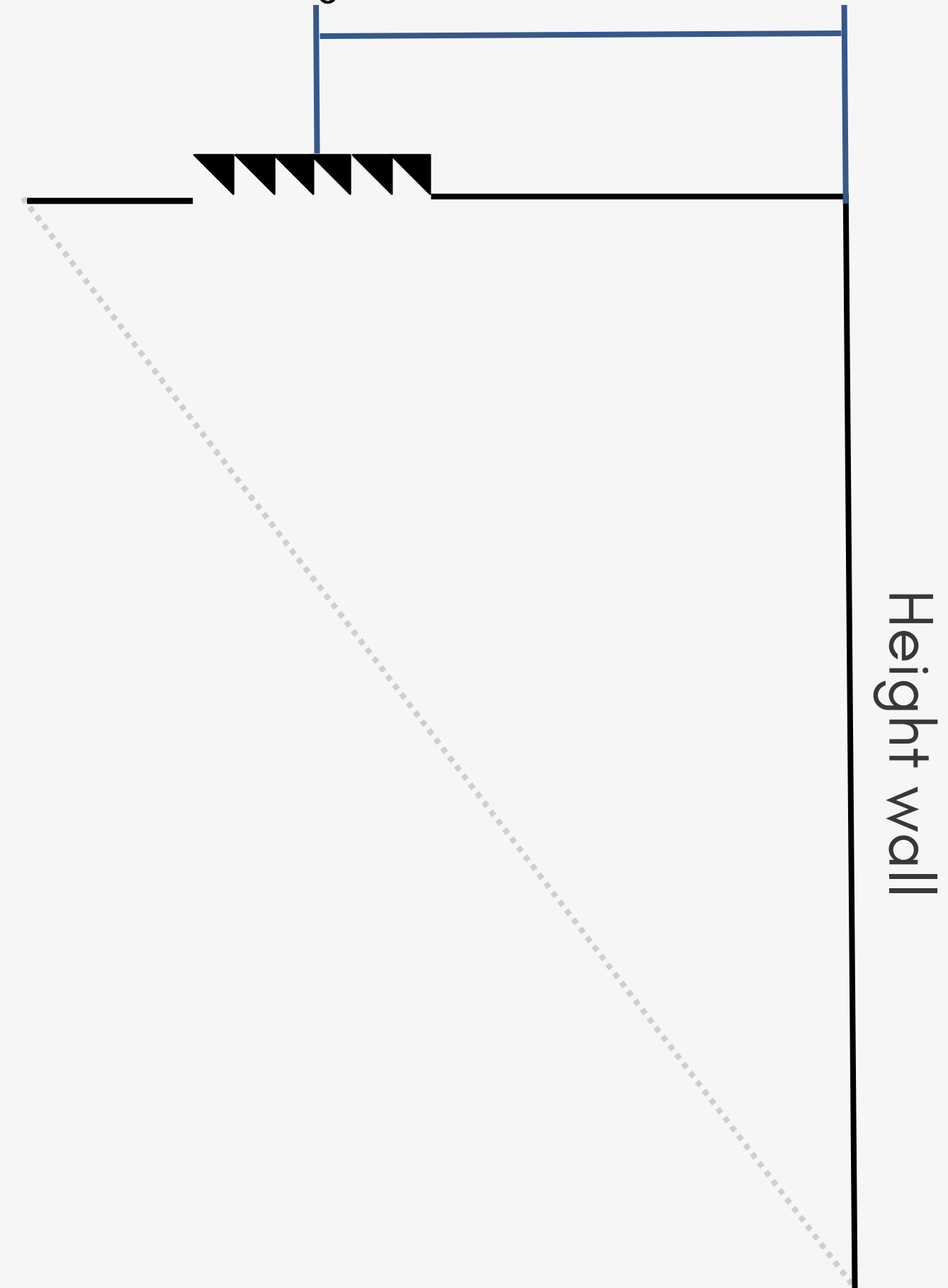
## LLC25A



The spacing of the luminaires should be equal or up to 0.6x to the distance from the wall.

## Integration

Distance from the wall : 1/3 of the height of the wall is recommended.



# ASYMMETRICAL LENSES

## *Installation*

### UFO45A

**LED : Citizen - Ref : CLU702**

- 1300 lm per LED with 4 x UFO45A
- Projection at 1 m from the wall
- Spacing - 1.2 meter
- Wall height - 2.6 meters

### LLC25A

**LED : Cree - Ref : XHP35B HI (flat top)**

- 800lm per LED with 6 x LLC25A
- Projection at 1 m from the wall
- Spacing - 60 cm
- Wall height - 2.6 m



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# ASYMMETRICAL LENSES

## *Installation*

### LLK59CW59A\*

**LED : OSRAM Ref : OSTAR STAGE S2WN**

- 800 lm per LED with 4 x LLK59CW59A\*
- Projection at 1 m from the wall
- Spacing - 1.2 meter
- Wall height - 2.8 meters



L  
L  
K  
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9  
C  
W  
\*

### LLK59NW59A\*

**LED : OSRAM Ref : OSTAR STAGE S2WN**

- 800lm per LED with 6 x LLK59NW59A\*
- Projection at 1 m from the wall
- Spacing - 1.2 meter
- Wall height - 2.8 meters



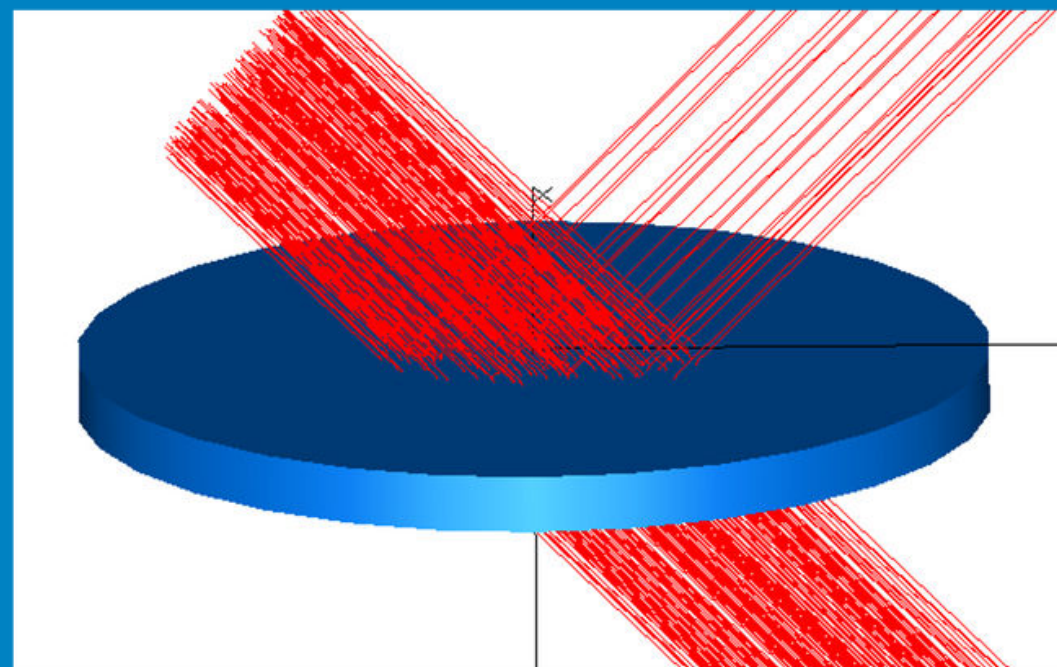
L  
L  
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\*



# ASYMMETRICAL LENSES

When light reaches an optical surface that separates two transparent materials, like plastic and air, around **96% of the light is transmitted** and around **4% is reflected**. This physical phenomenon is known as « Fresnel losses » and it happens each time the light travels through a transparent surface. The **asymmetrical lenses LLC25A and UFO45A** are bonded to this physical phenomenon and 4% of the incident light is reflected onto the asymmetrical optical structure instead of being transmitted. This reflected light is what creates the backlight.

100%



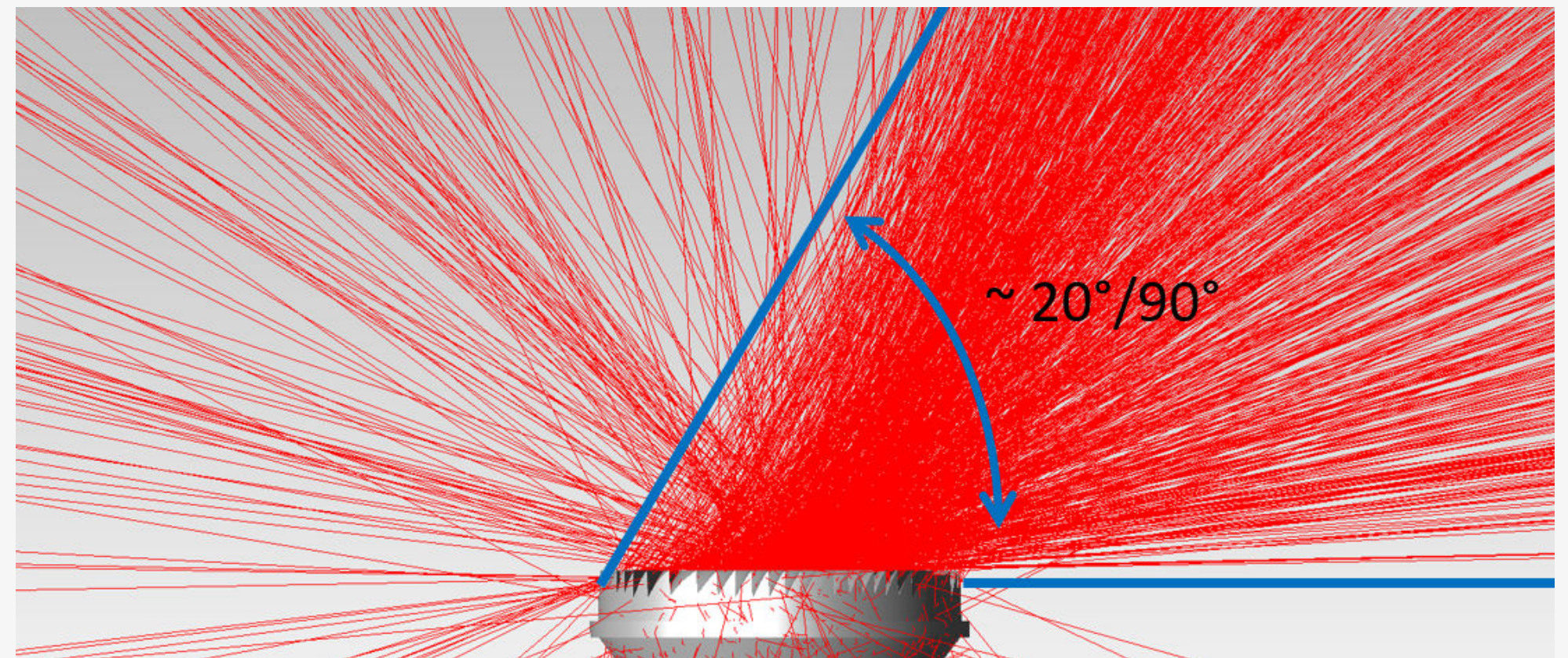
4%  
Backlight

96%

Main beam

## Focus on backlight

Even if the optical system is extremely well designed, there may be some **unwanted light** coming out of the optic. This light are **rings around the main beam** and they are not intended to the design, but the effect is **inevitable with the highest intensity beams**.

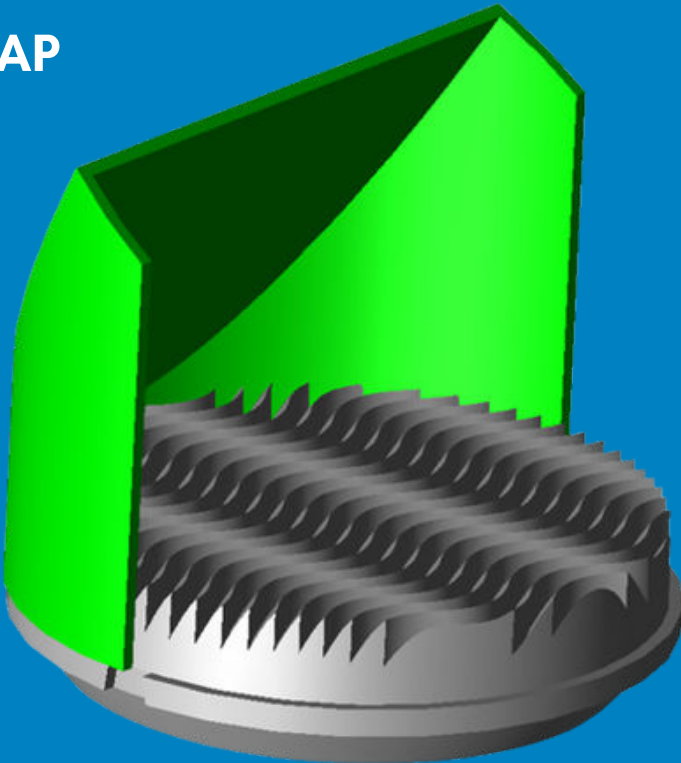




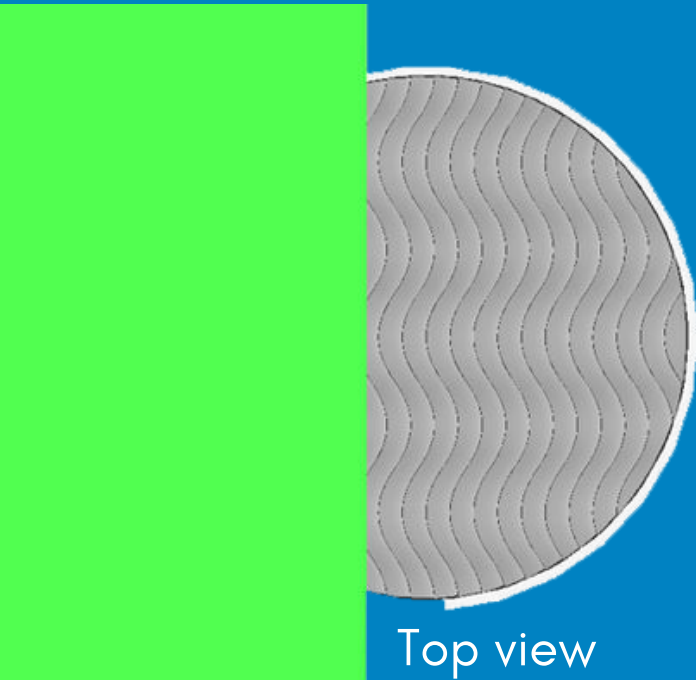
# ASYMMETRICAL LENSES

To make this backlight disappear,  
we have created two concepts.

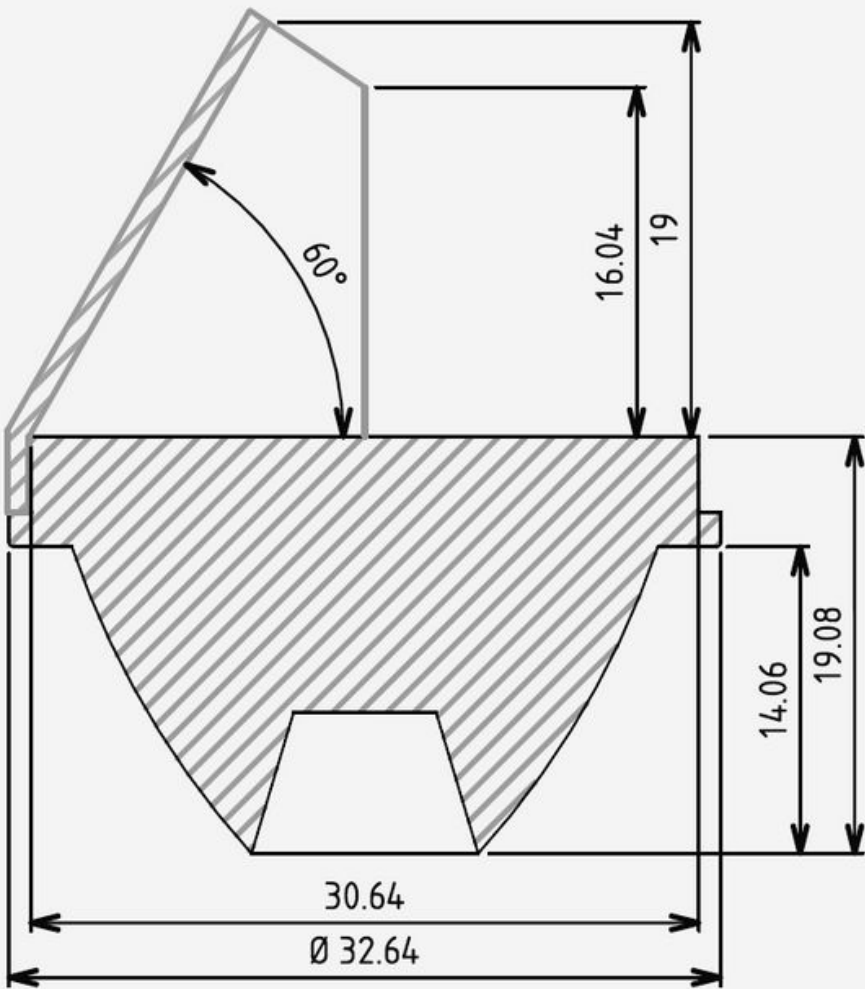
1 - THE CAP



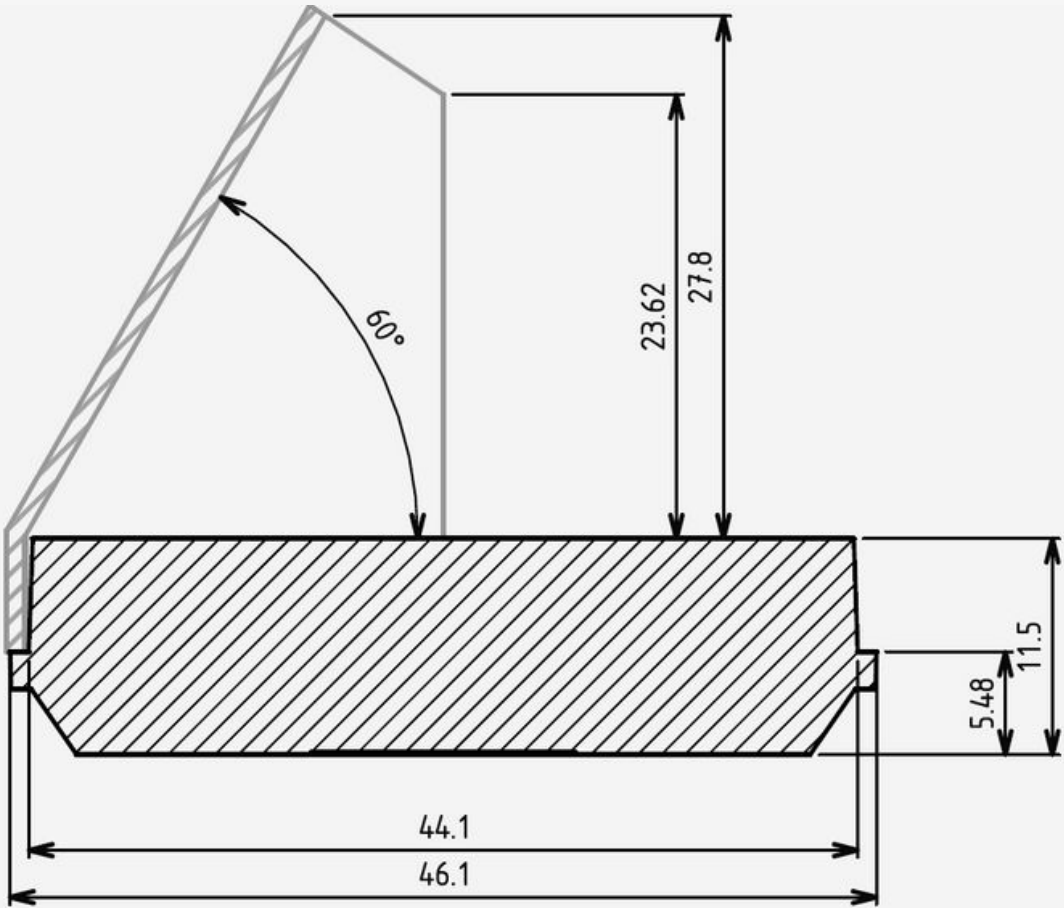
2 - THE PLATFORM



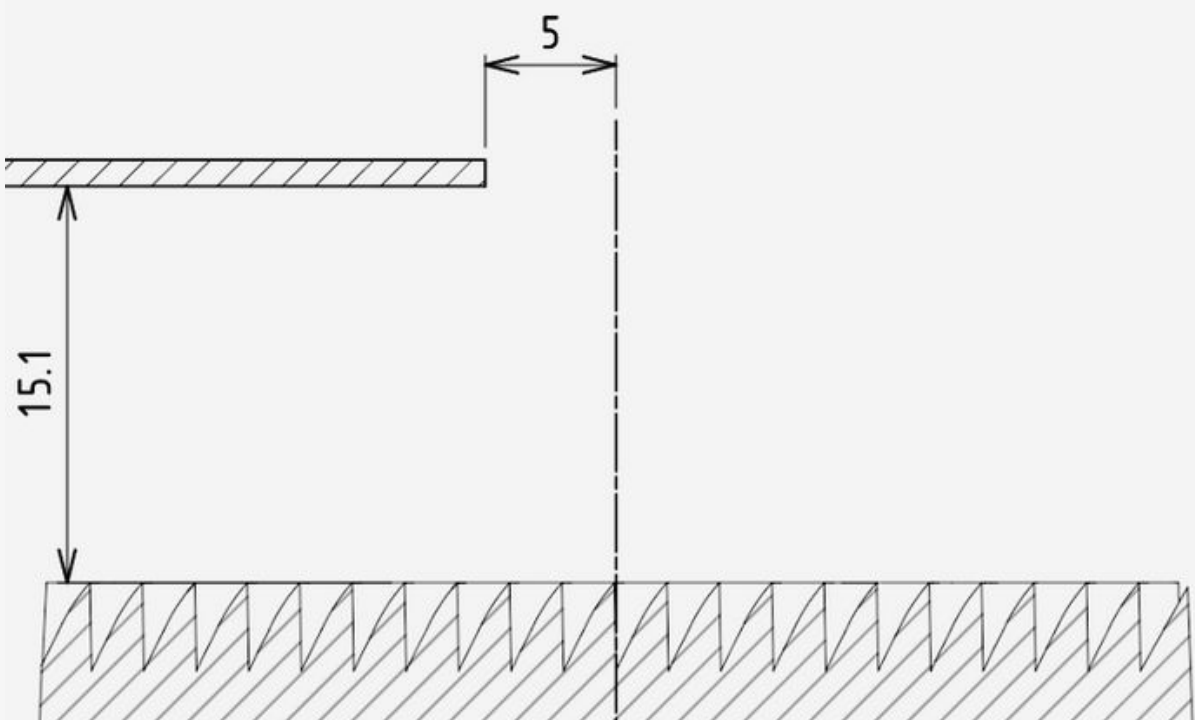
*How to avoid it?*



LLC25A



UFO45A





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