

OUTDOOR LED SCREEN LIGHT DESIGNING

JIAYIN FENG



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BACKGROUND INFO

Influences of light pollution

- For Animals:
 1. Navigating
 2. Circadian rhythm
 3. Daily lifestyle
 4. Population Distribution and Reproduction
-



BACKGROUND INFO

Influences of light pollution

- For Human:
 1. Astronomy
 2. Circadian rhythm
 3. Eyesight
 4. Even higher cancer rate
-



BACKGROUND INFO

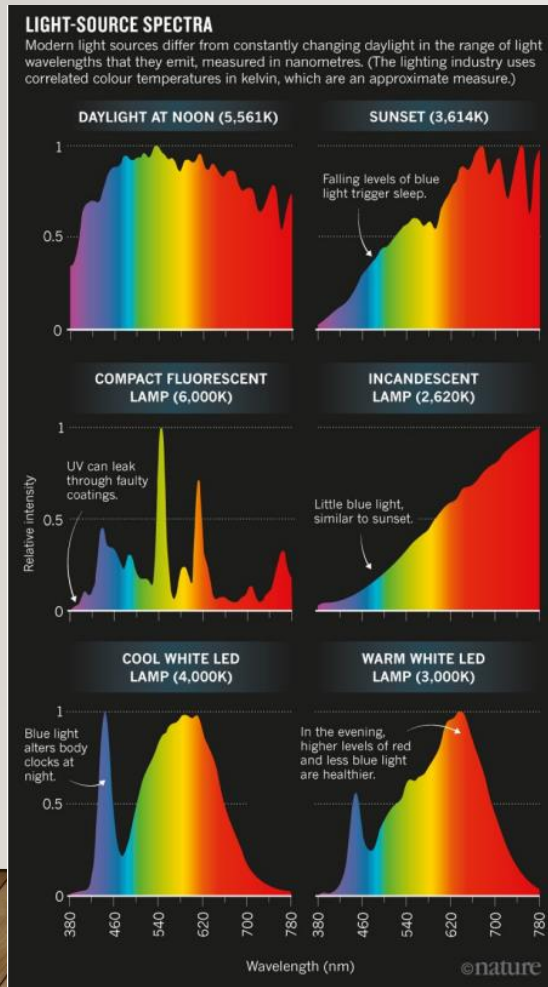
How LED different?

- Environmental friendly: less electricity consuming
- Brighter
- **BUT ...**
- **More harmful in light pollution**



BACKGROUND INFO

How LED affects light pollution?

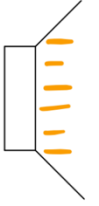


- Extremely large amount of blue lights
- There is a large decrease in blue lights after sunset, however, the amount of blue lights remain the same for using LED whenever day or night.
- Blue lights are extremely harmful to eyesight
- Even higher cancer rates...

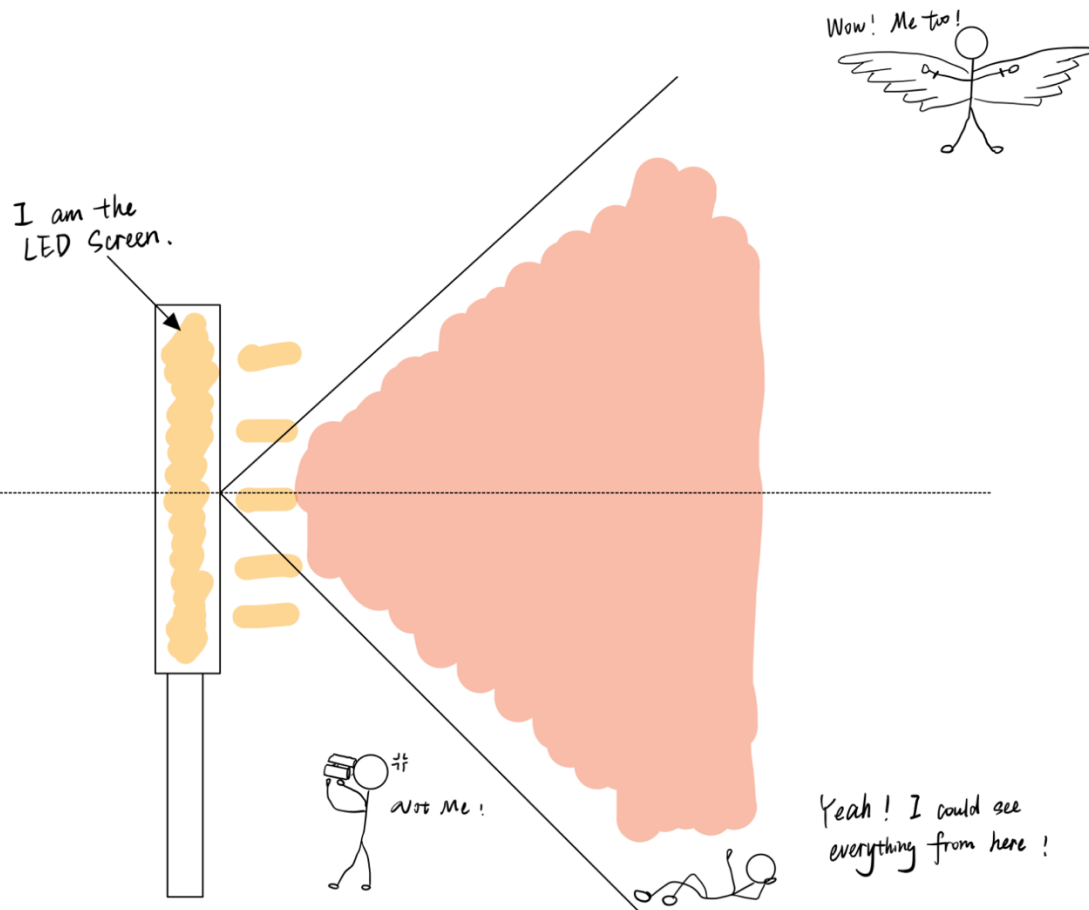
DESIGNED PRODUCT

Why do we need this?

It looks like this :



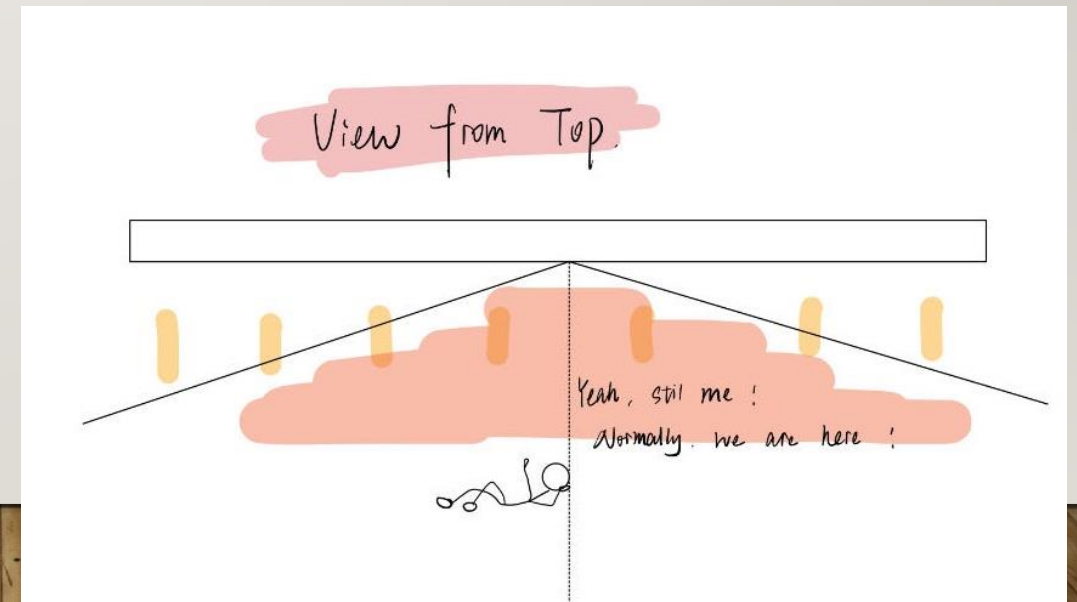
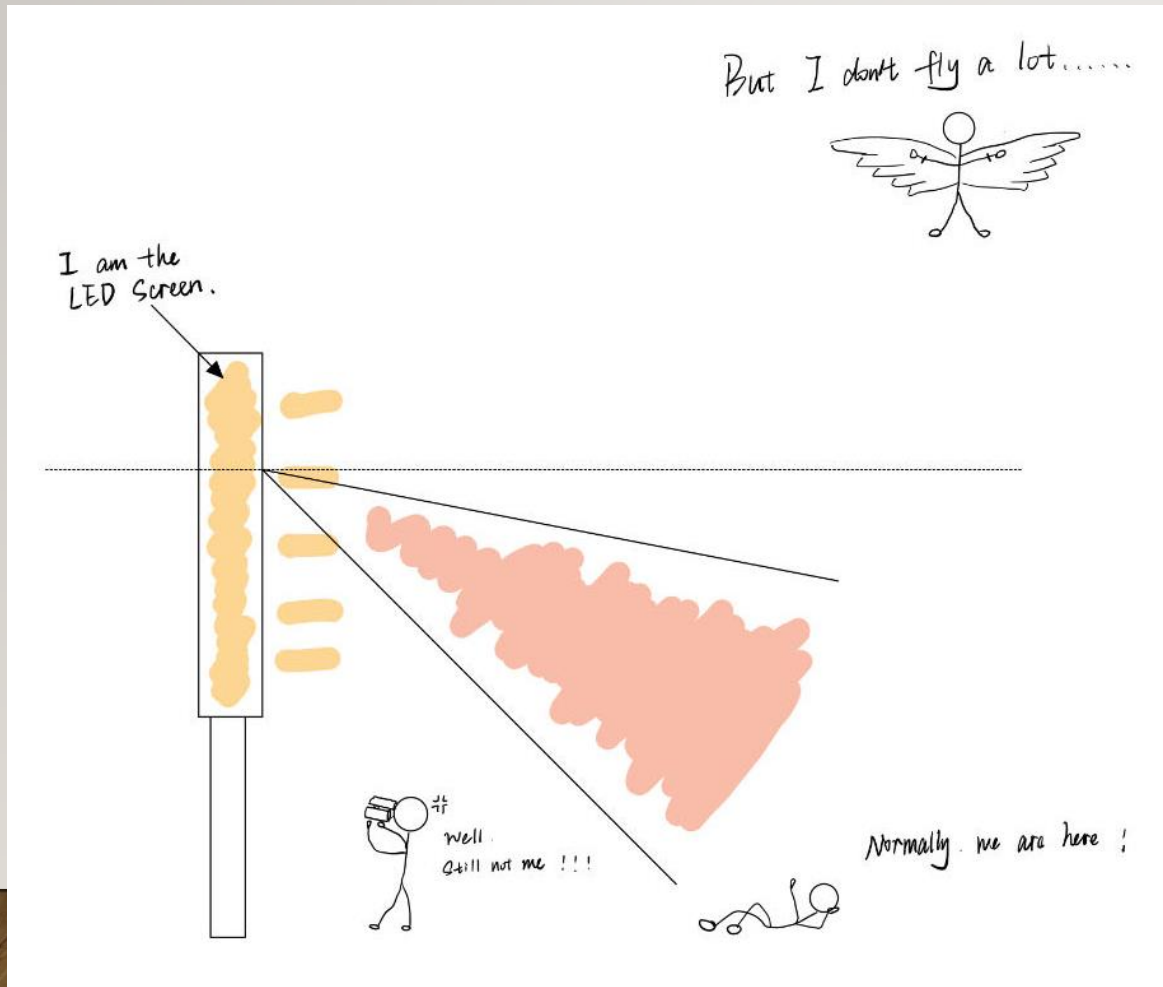
- Here we introduce the **Top View** and **Down View**.
- This two represent a visible looking down sight and a visible looking up sight.



DESIGNED PRODUCT

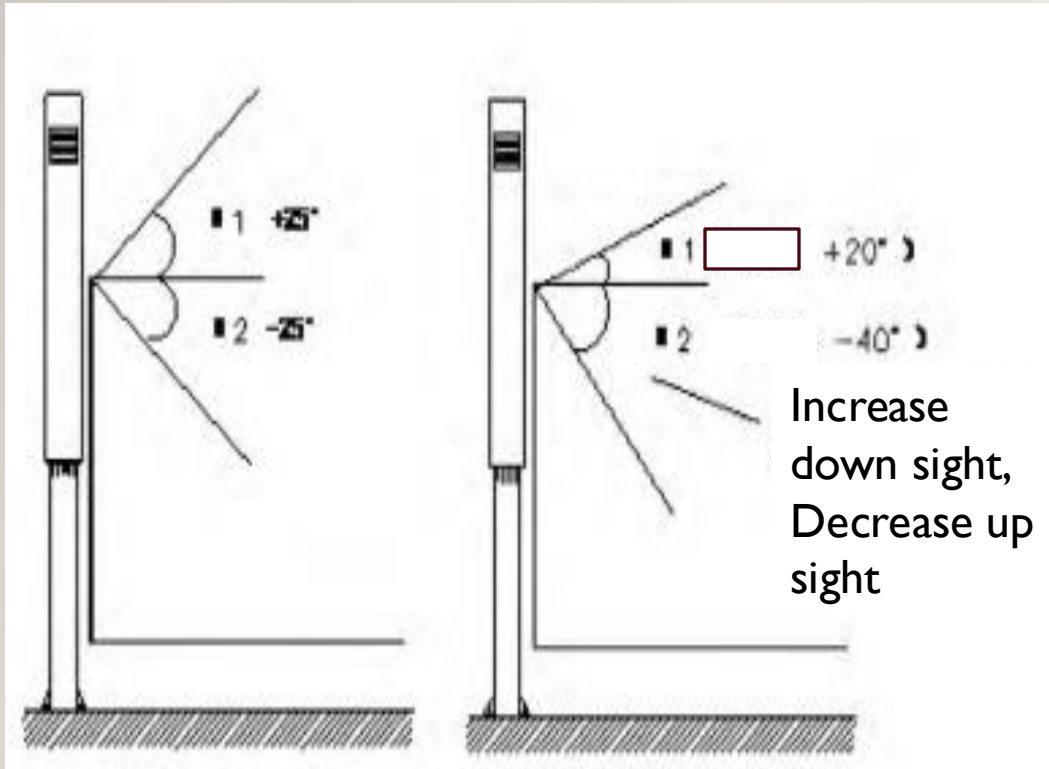
Why do we need this?

- However, normally, we see the LED screen from a lower view by looking up.
- So, we have the ideas for “**valid viewing range**” and “**invalid viewing range**”.



DESIGNED PRODUCT

How it is designed?



- Therefore, we come up this mind that, it is possible for us to use some different kind of materials to change this Top Sight Angle and Down Sight Angle.
- So that, more light and power could be use effectively.

DESIGNED PRODUCT

How it is designed?

型号	IV(mcd)	WD(nm)	H-H	50% H-H	V-V	50% V-V
LL2407EYHR4-B02	1000	624	110°	左=55° 右=55°	60°	上=20° 下=40°
LL2407PUPG4-B02-01	2200	525				
LL2407PLBL4-B02-01	480	470				

型号	IV(mcd)	WD(nm)	H-H	50% H-H	V-V	50% V-V
LL2418EYHR4-A02-C	1200	624	105°	左=52.5° 右=52.5°	50°	上=25° 下=25°
LL2418PUPG4-A02-C	2400	525				
LL2418PLBL4-A02-C	520	470				

- During research, I found this “Lehman asymmetrical” material, which could achieve the effect we want.
- The top chart includes the statistics of “Lehman asymmetrical” material, while the bottom chart includes the statistics of normal materials.

DESIGNED PRODUCT

Why it could reduce light pollution?

- As we reduce the amount of “invalid” sight, we reduce the amount of “invalid” light that go into the sky.

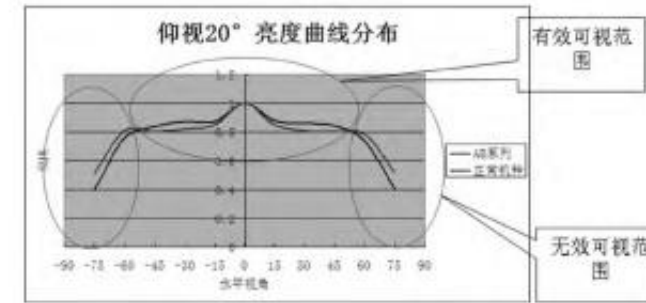


图6 仰视20° 无效可视范围光污染对比

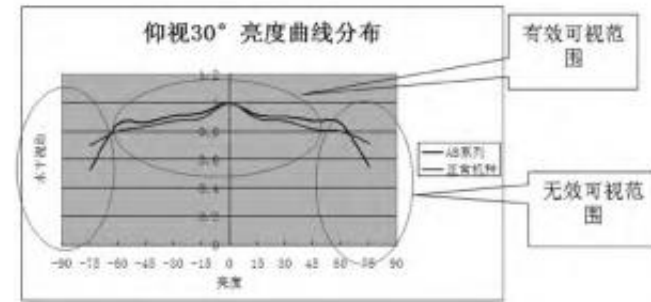


图7 仰视30° 无效可视范围光污染对比

- As we could see from two grams, from both looking up 30 degrees and looking up 20 degrees sight, there is a obvious decrease in light pollution

Thank you
for your listening!

