

**Stand 4**

CLUSTER 1

# Common focus light engine

## Sense, purpose and aim:

High beam dual wavelength LED based light source

### Initial Situation

High beam light source

1. one spectrum only (if good for clear bad for foggy weather)
2. Short lifetime of lamp

### Problem

1. There are many high intensity LEDs in the market but none is used for high beam head light
2. The major problems are: a. large area of light emittance, b. heat sink problem

### Proposed Solution

The proposed solution is special LED based light source which can have very high output power, narrow beam divergence, multi wavelength and simple heat sink.

### Increase in Comfort

There is no competing solution

### Degree of Maturity

1. Prototype are already working
2. for production need to do optimization and mold design in

order to make low cost product.

3. no development risks
4. Time required ~ 6-10 month

### Economic Potential

1. I didn't do any marketing study
2. The potential market is all high beam automotive manufacturer
3. To show feasibility according to spec is estimated 80-100K€ estimate time: 4-6 month
4. The ROI might be very short if car illumination manufacturer buy the technology or we will manufacturer for these company OEM product.

### Increase in Comfort

1. Dual wavelength LED light source has 2 benefits:
  - a. wavelength suited for the weather condition.
  - b. longer life
  - c. higher intensity

### Improvement in Functionality

Currently the light intensity and wavelength is constant. we can change it so it suit better to road and weather condition

**Technology- Current Solutions**

The current solutions are either non commercial or complicated or have small efficiency

**Technology- Current ideas**

Many ideas none is working

FIG. 22

**Technology- CFLE-10**

Scale images of LEDs and CFLE image

First prototype made by machining and mold polishing gave from 120 degree LED ±20 Degree

**Technology- CFLE-12**

Real life is not ideal!  
Real 60 degree LED rayfile on CFLE shows narrow beam  
10 cm divergence after 2 meter!!!  
Which makes 2.8 degree divergence

31623	□
10000	■
3162.3	■
1000	■
316.23	■
100	■
31.623	■
10	■
3.1623	■
1	■

**Applications Telecentric Illumination**

Object

CF Pinhole at common focus

Image Sensor

**3D Camera**

Power in Video out Wall Plug

Common Focal Light Engine CFLE