



Optiques du futur dans l'automobile

besoins et challenges technologiques



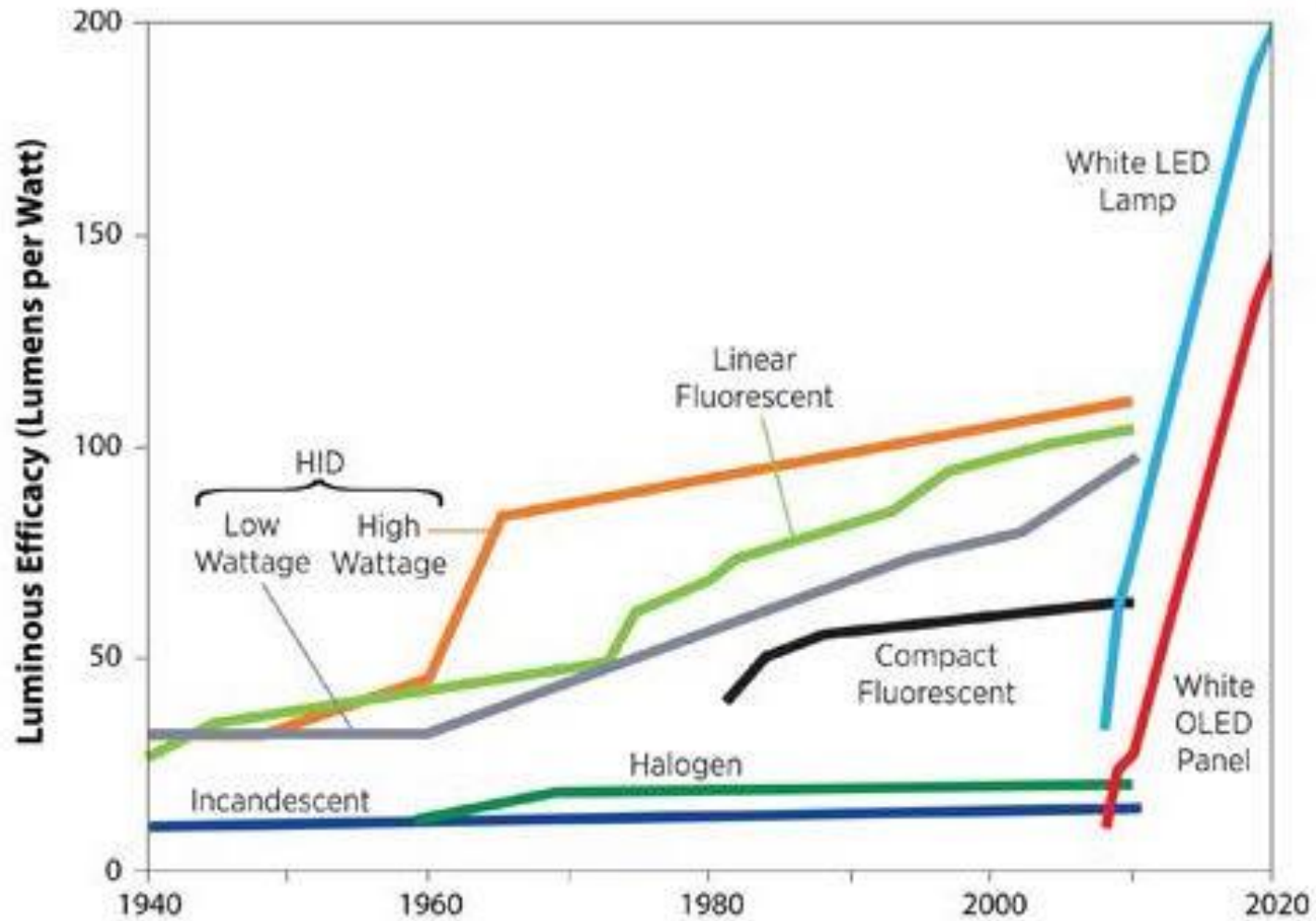
RESEARCH & ADVANCED ENGINEERING DIVISION

Dr. Whilk GONÇALVES
Head of Innovation
Lighting & Signalization

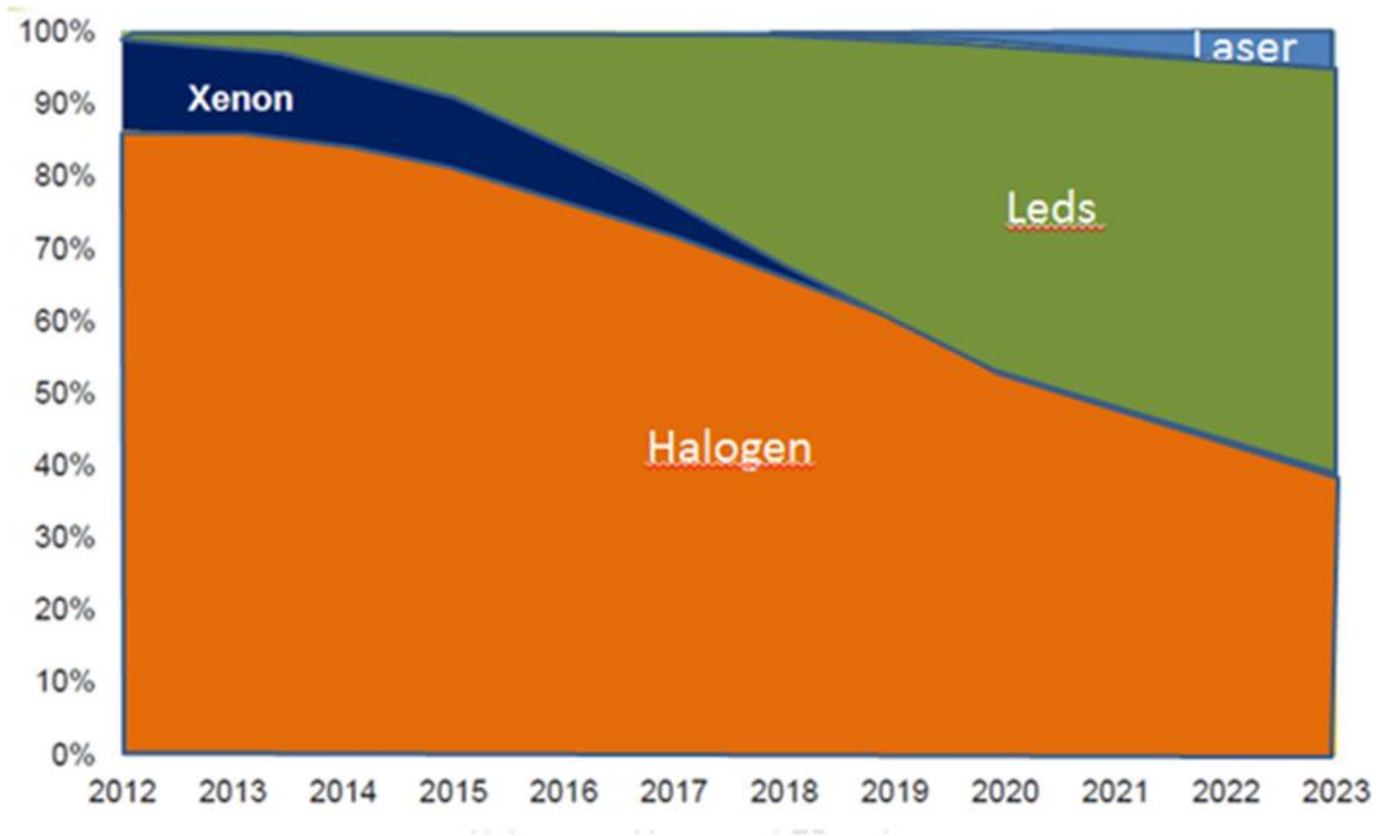
2



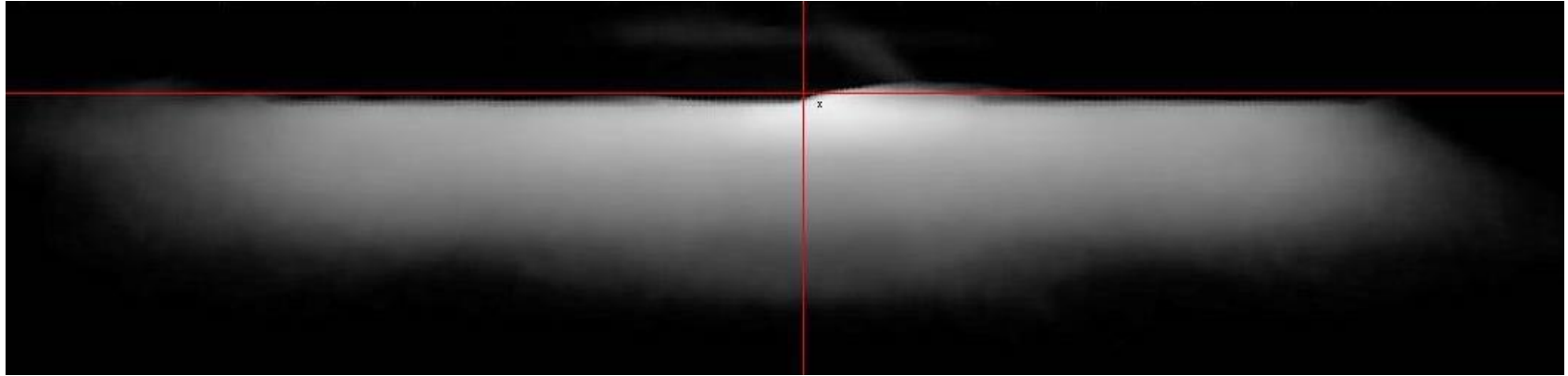
Light sources efficiency



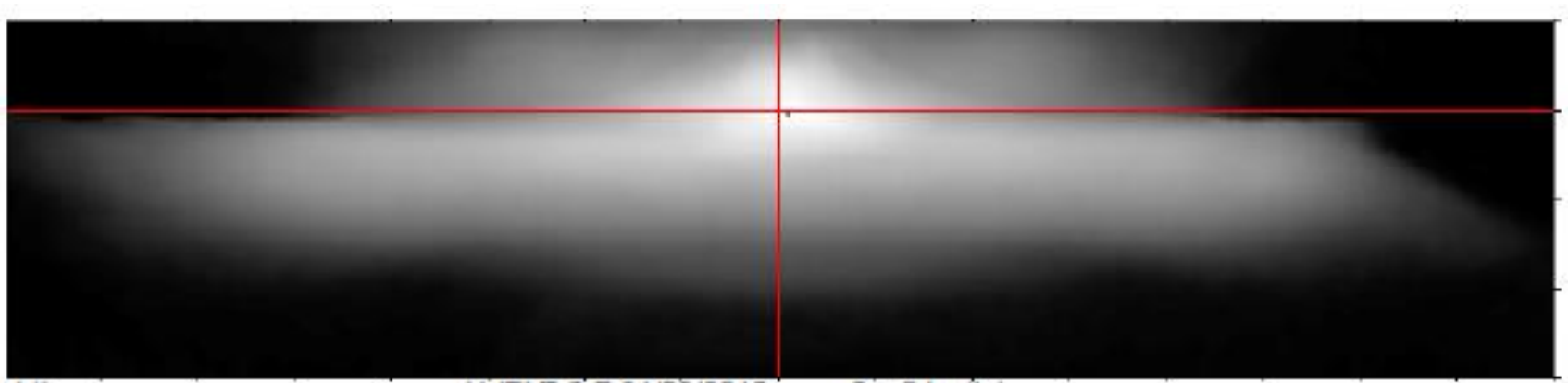
Automotive Light Sources – Market sharing evolution



The classical beams



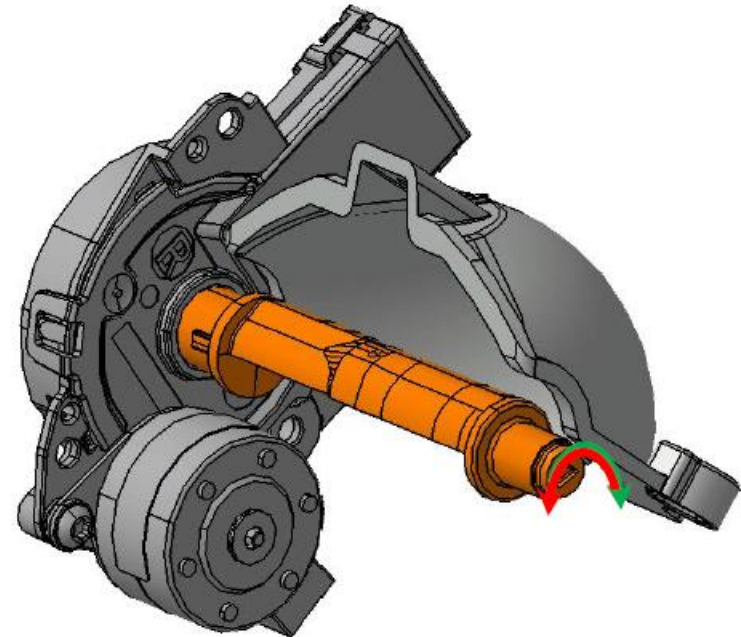
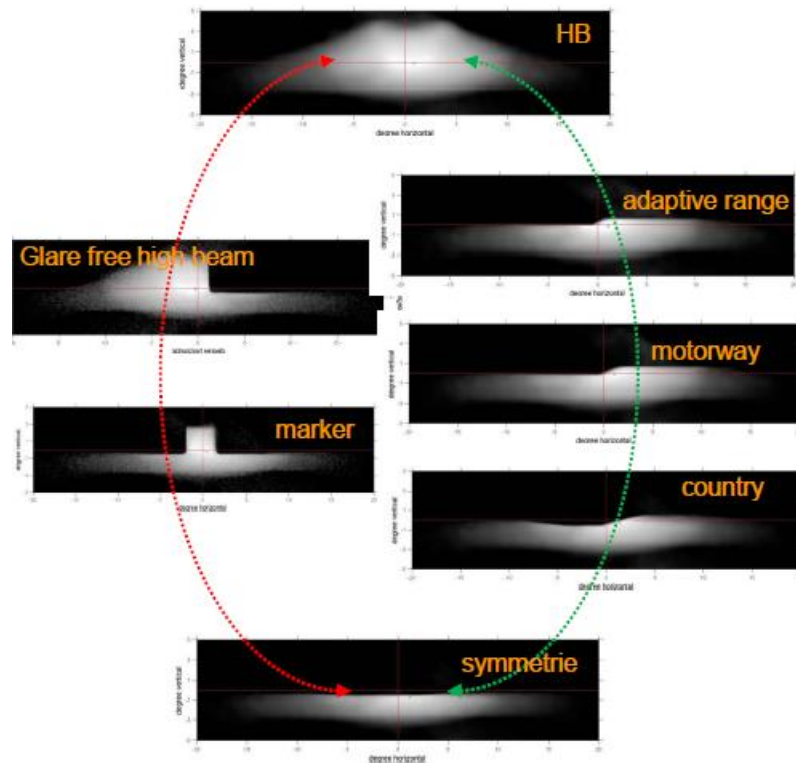
Low beam



High beam

The AFS Beams - Mechanical solutions

ECE RHT left mounted:



The ADB – Adaptive Driving Beams



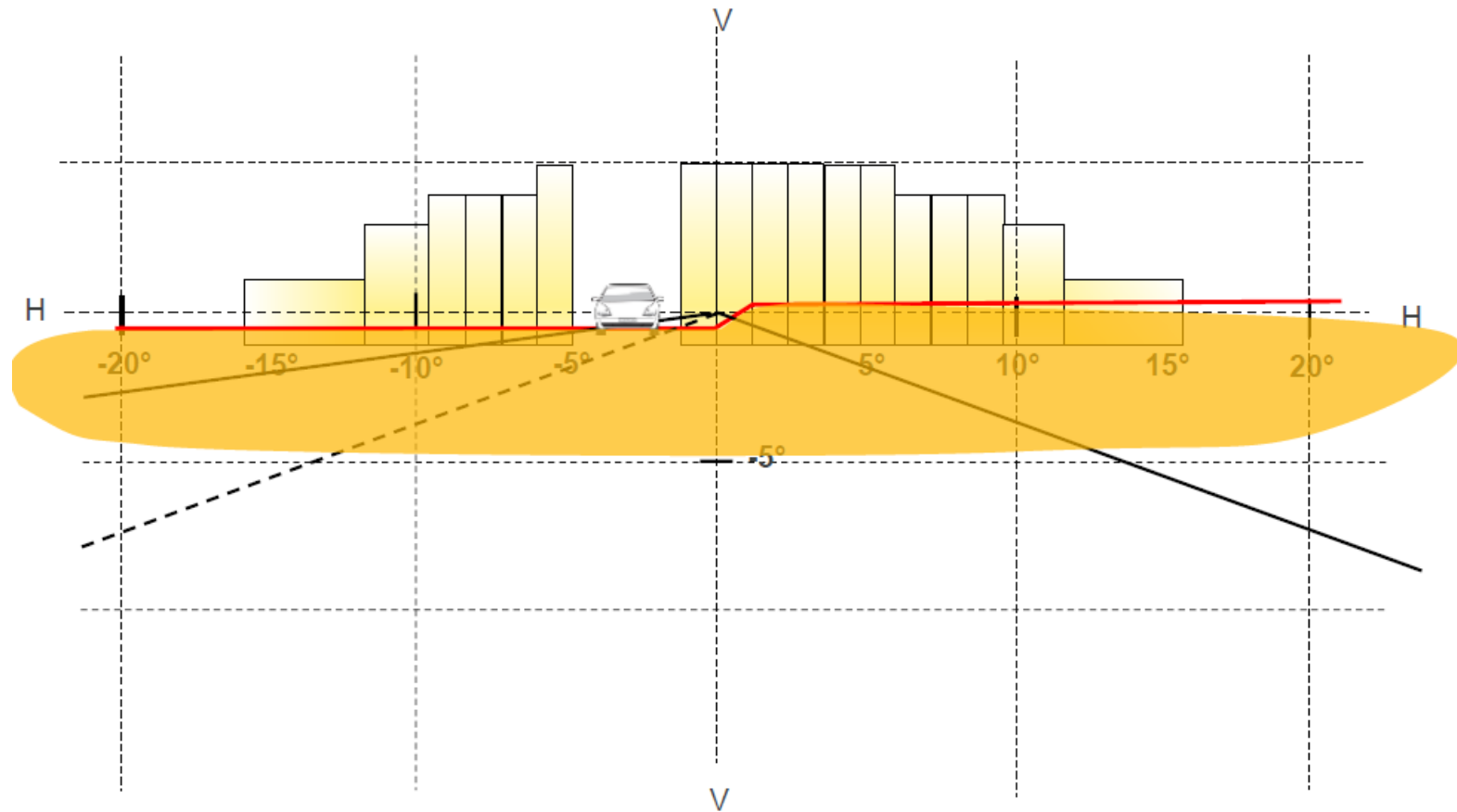
The ADB – Adaptive Driving Beams



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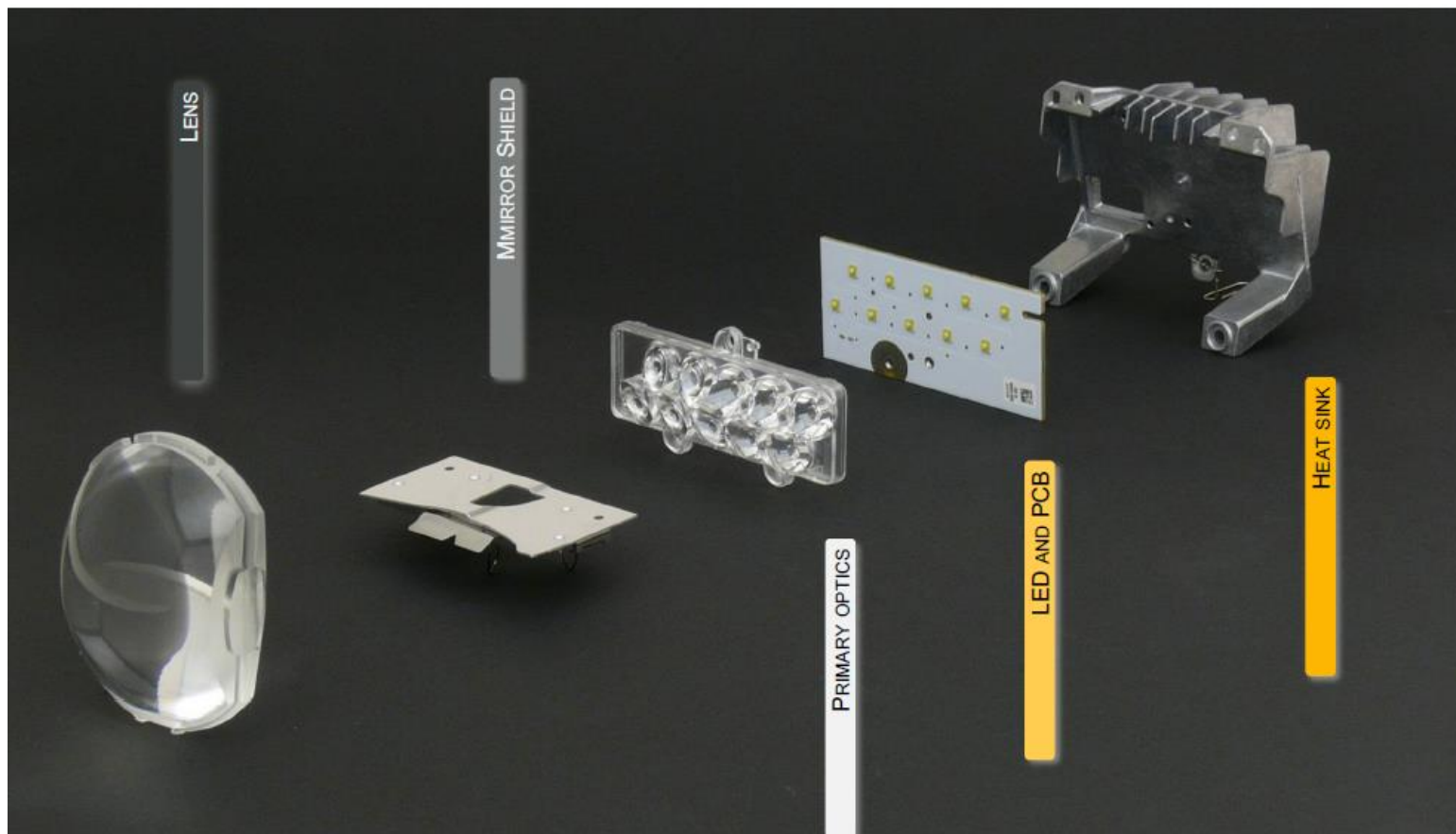


ADB - MATRIX BEAM

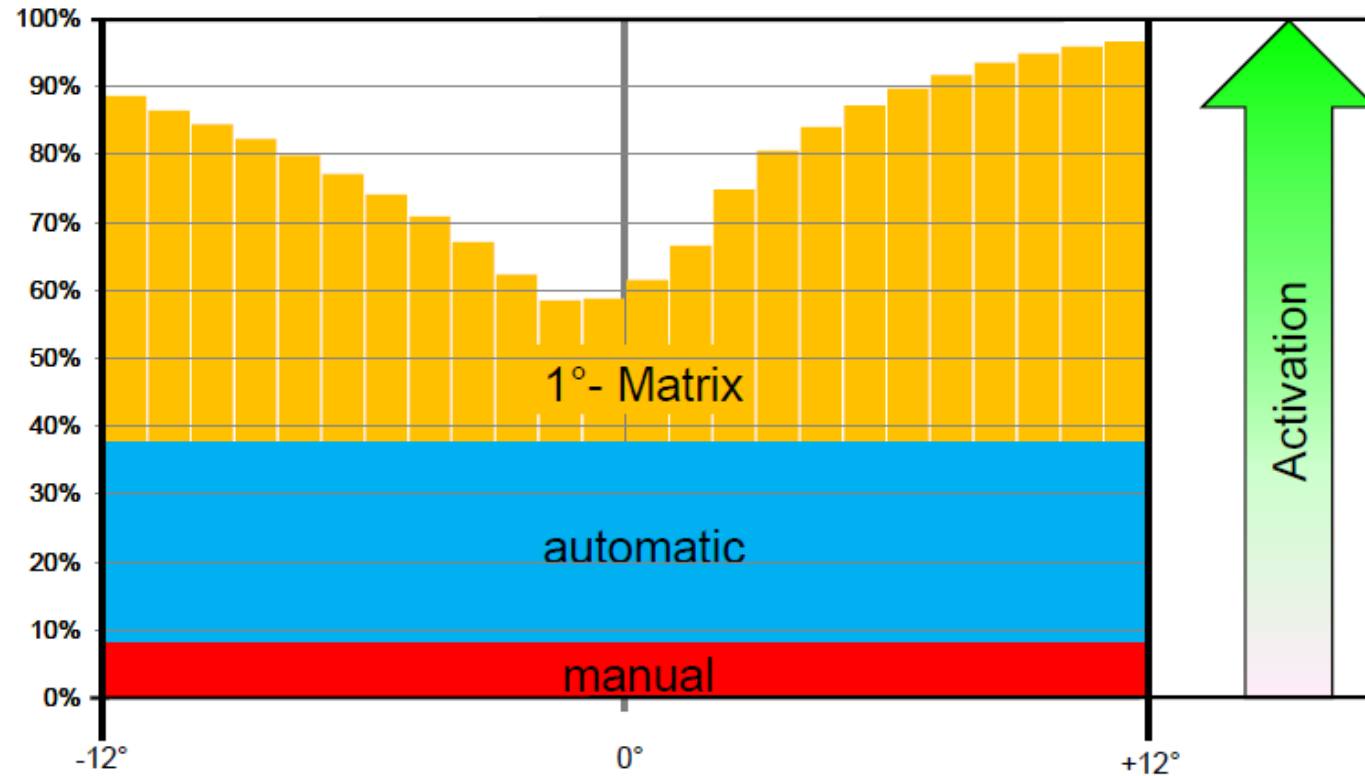


ELIGHT MODULE

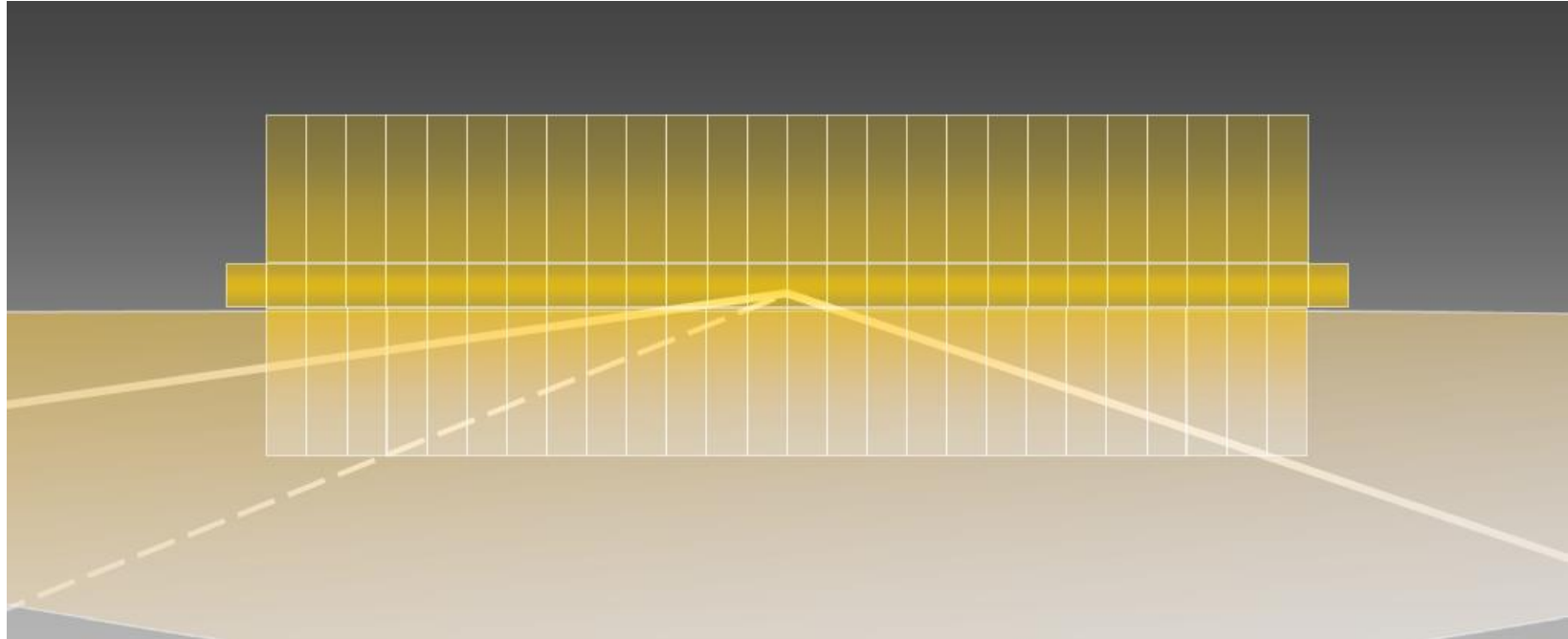
24 hours daylight.



High beam – Activation frequencies



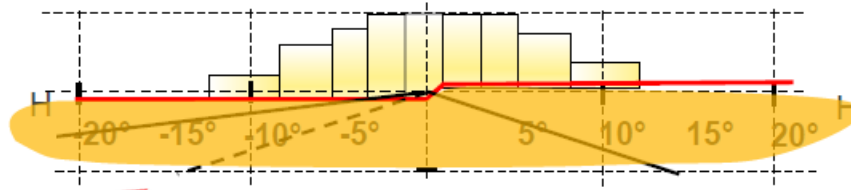
The PIXEL Light – higher order matrices



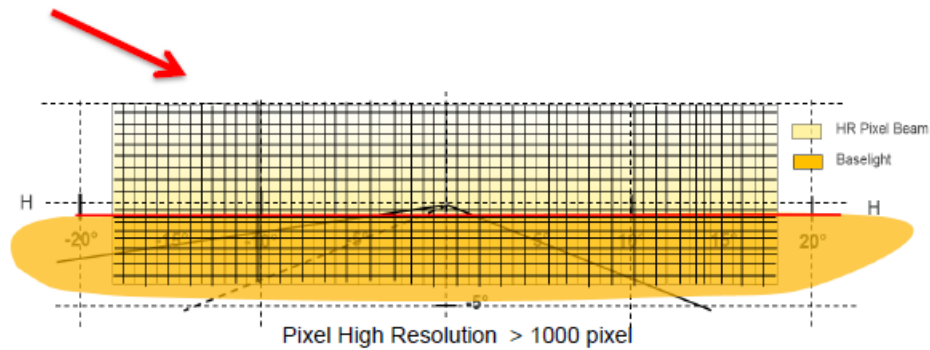
84 pixels

Matrix vs High Resolution

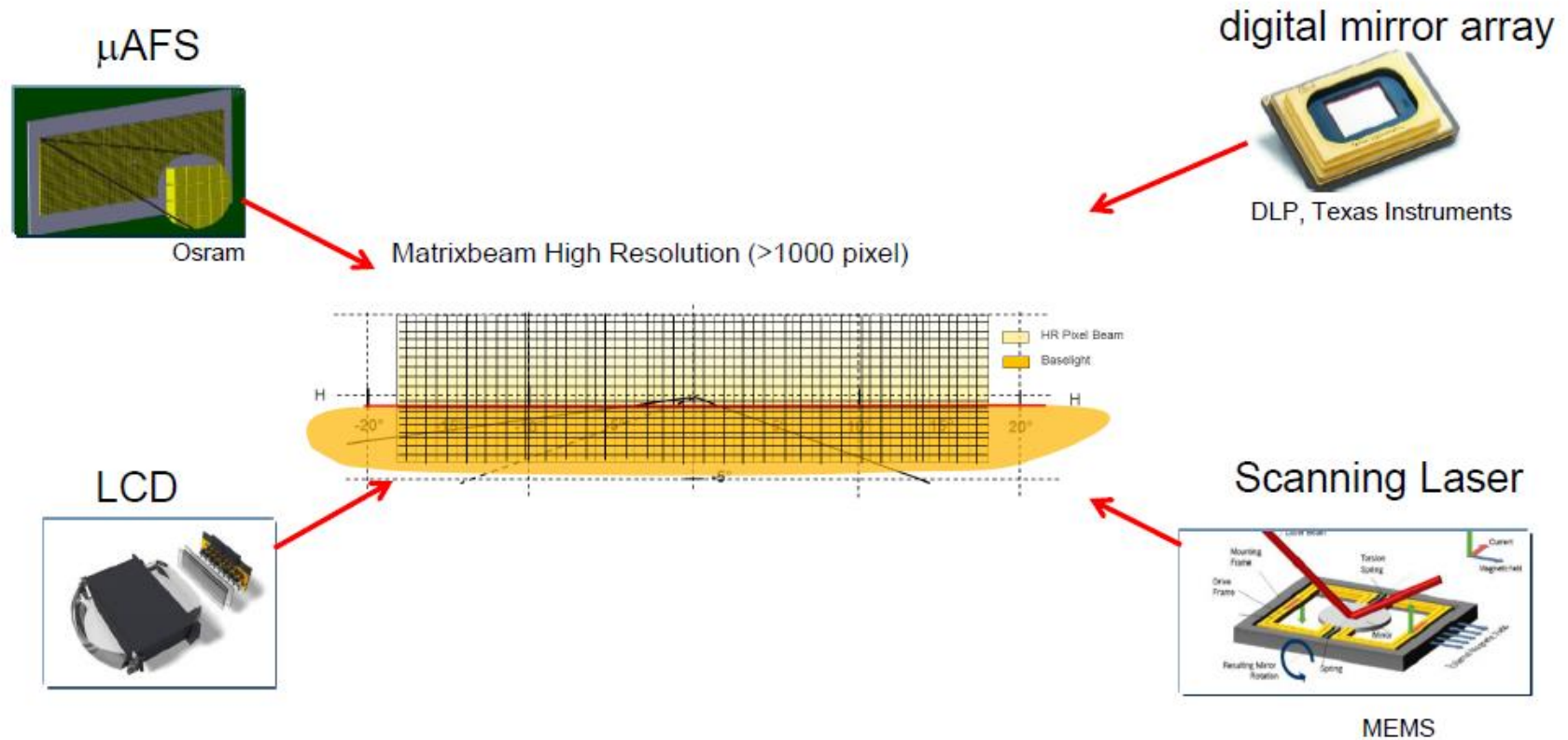
Matrix Beam



Pixel Light



Different technological solutions

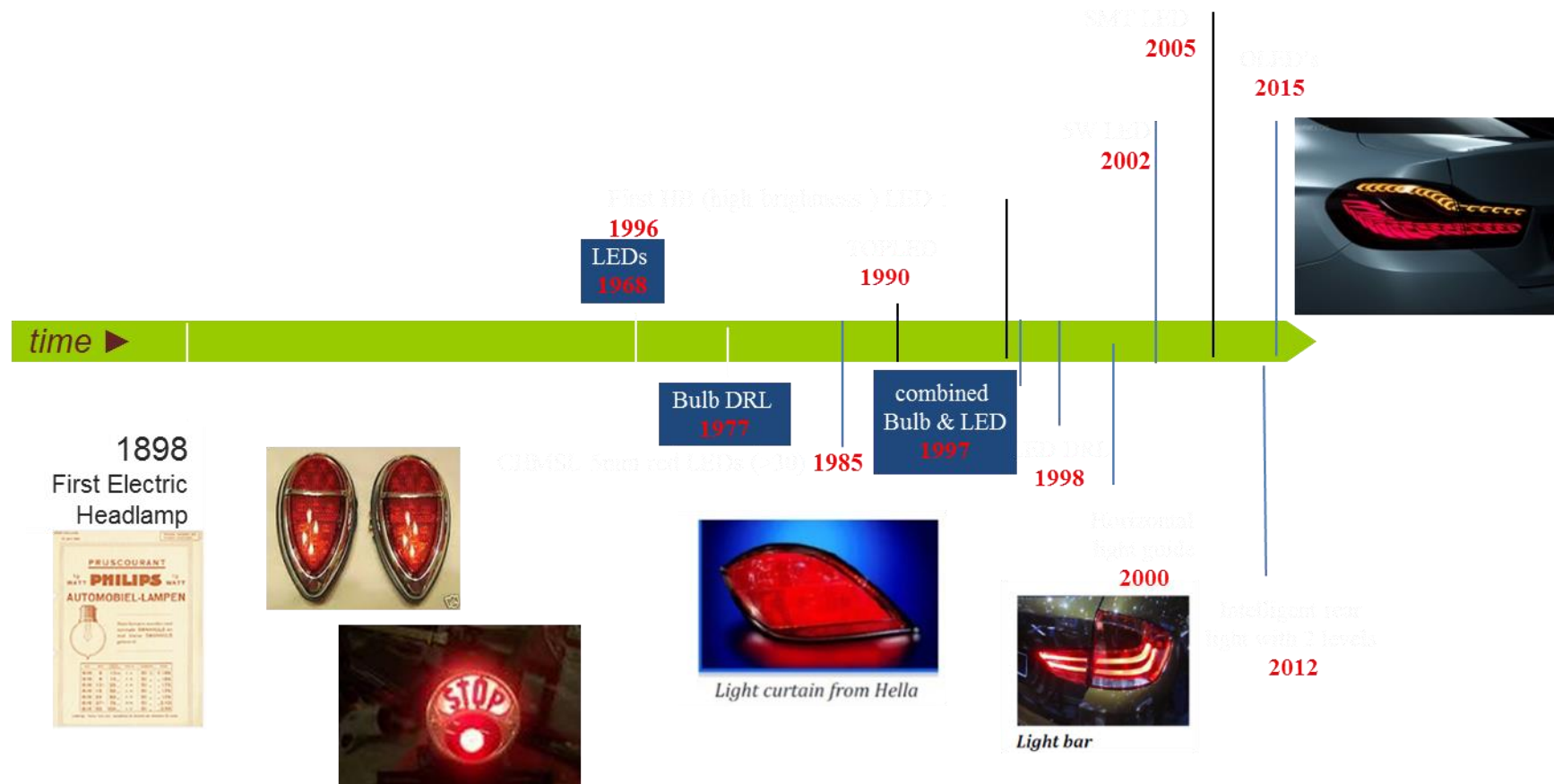


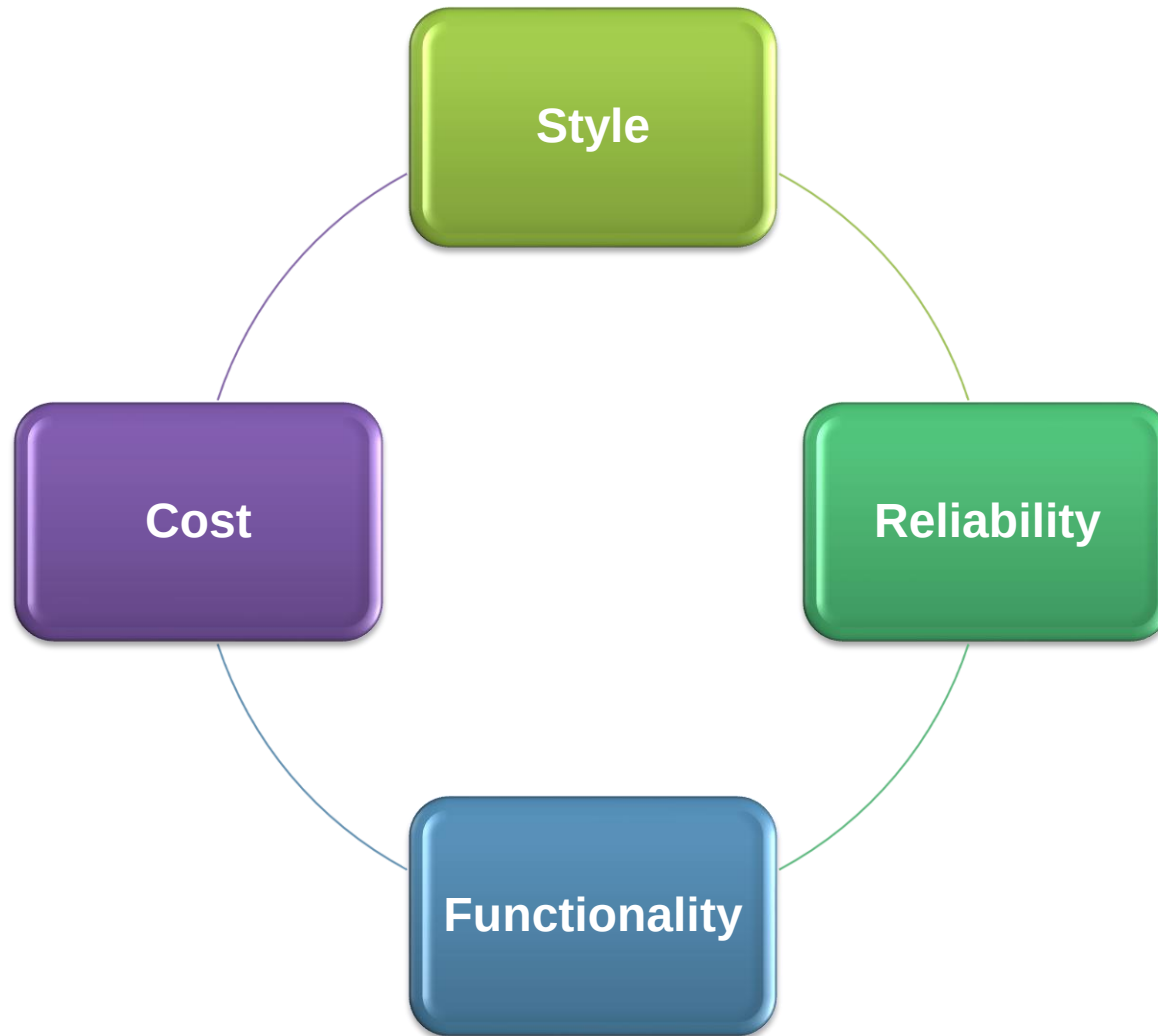
- No longer two beams (low and high) but a holistic light distribution
- Hundreds or thousands of individually controllable pixels:
 - ☐ On / off state
 - ☐ Intensity control (avoid road signs glare / stress danger)
 - ☐ Projection of signs and information on the road
 - ☐ Color control ?

<https://www.youtube.com/watch?v=0OJjvYPV3oc>

MULTIBEAM LED headlamps in the new E-Class

Signalization – an open door for communication







Style Expectations

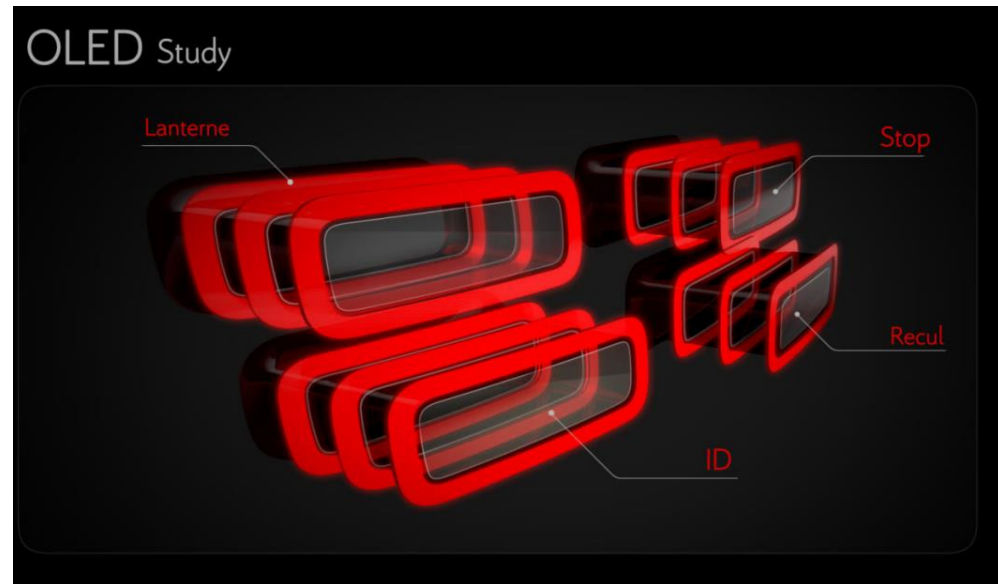


- Mosaic setup
- Combination with LEDs
- 3D effects
- Semi transparency
- Homogeneity



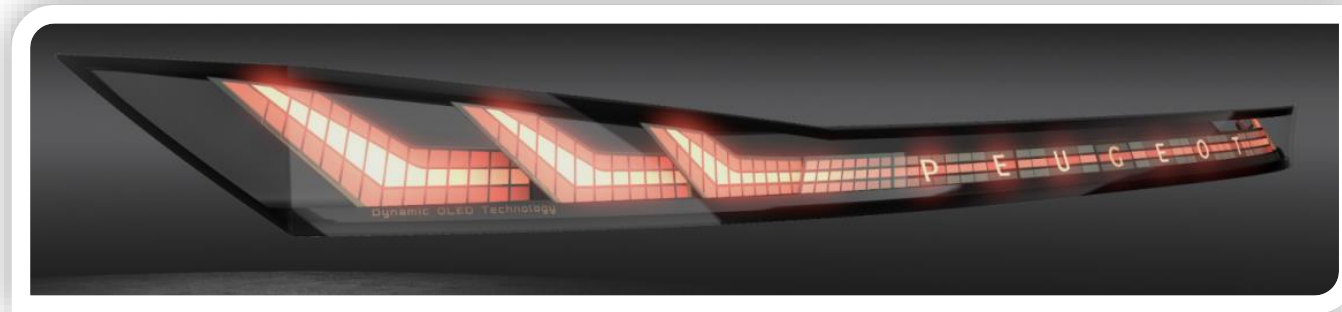
Possible translations for our brands:

- Floating structures
- Transparency
- LED functions seen through

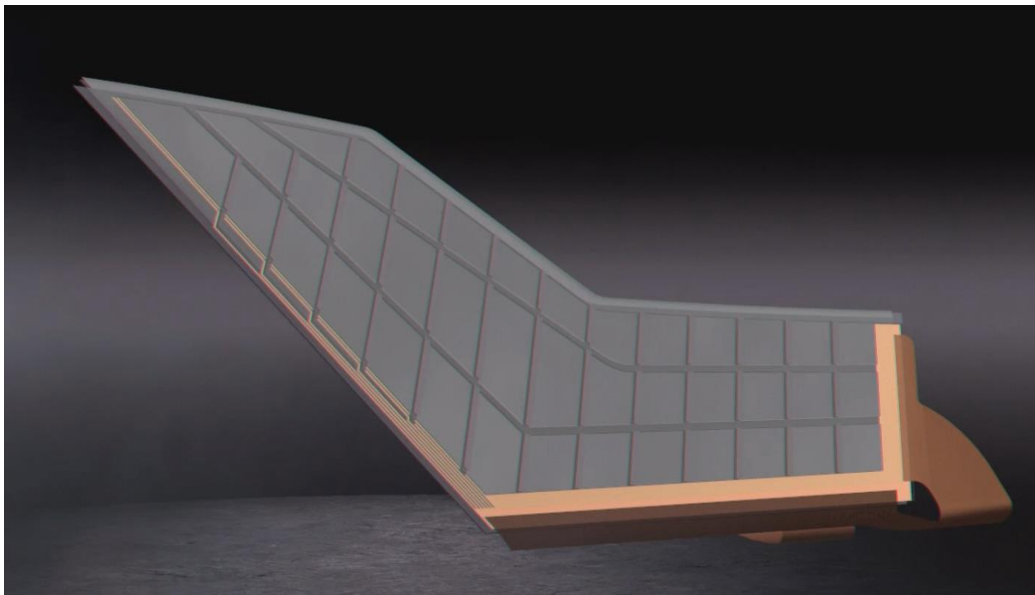


Our challenge :

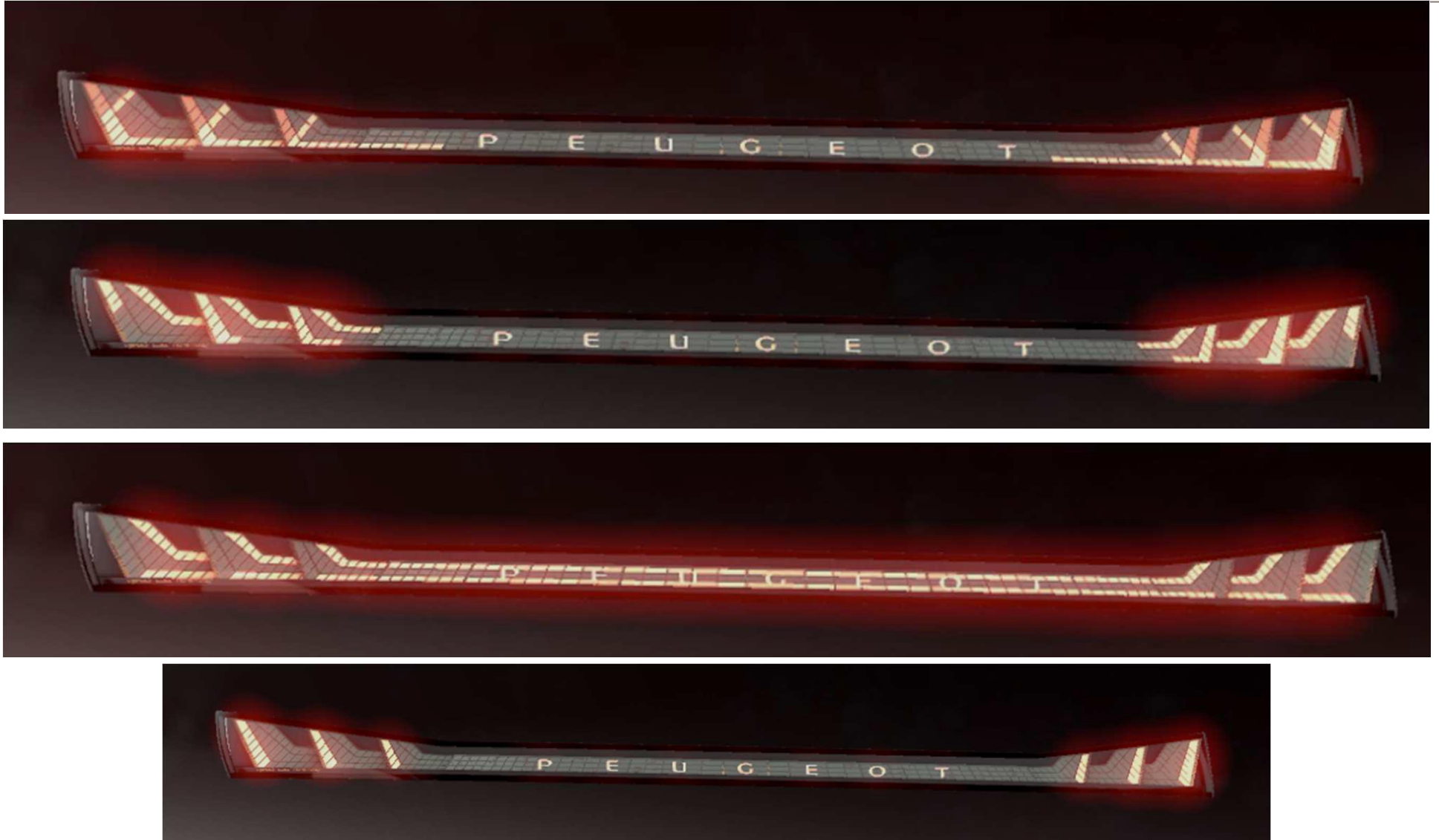
« to conceive an original OLED that could not be approached by other means »



PEUGEOT



Style – Multi-segmentation





We foresee many applications for white OLEDs but the current limitations are:

- Reduced brightness
- Angular dependent color effects
- Color temperature : we are looking for cold white at 5200K (currently ~ 4200 K)

The new DS7 - New optical systems

<https://www.youtube.com/watch?v=SBKSRyXPJB8>

