



“The next Tasks of the Car Lighting”

San Francisco Lighting Workshop
August 29 - , 2023

The next Tasks of the Car Lighting

What Tasks? Seeing and being seen / communication Safety!

Next Task: AVs and ADAS need best possible camera vision.
Lighting for machine vision is necessary. ADB is a good base.

.... and what about Emotions?

Lighting can create (e. g.)
surprise, curiosity, fun, want-to-have, fear, envy, superiority, leadership, ...

Next Task: EVs create other Emotions than ICE cars.
Must the Emotion-part of the lighting change?

The next Tasks of the Car Lighting

Safety and Emotions. But who defines the lighting in a car project?

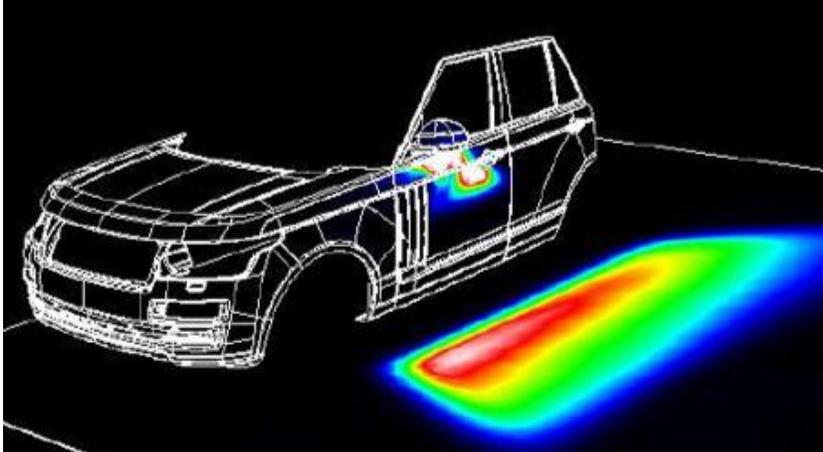


Some new Lighting Elements

- Small projectors for dynamic ground illumination starting to enter the car
- Lit Logos at Front / Rear / Side are trending. Worldwide legislation still difficult.
- Range Rover's „Maneuving Light“ (first machine vision), Audi's CHMSL screen projection



Maneuvering Light (first machine vision function)



Range Rover's maneuvering lights are extremely useful during off-road driving in the dark

Maneuvering in confined spaces, projection width of 1.6 metres to each side

Maneuvering lights were developed jointly by lighting and ADAS team to realize a 360° vision system



CHMSL Projection (surprising and fascinating)



Audi SUV Q6 China
CHMSL Projection into the rear screen.
„Spoiler Mapping Light“ No matter of
homologation (?)

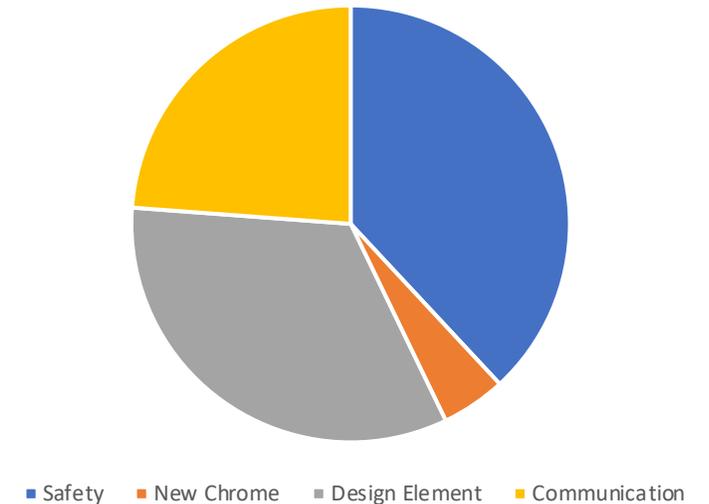


The illuminated Front Grills create Lighting-Emotions for EVs

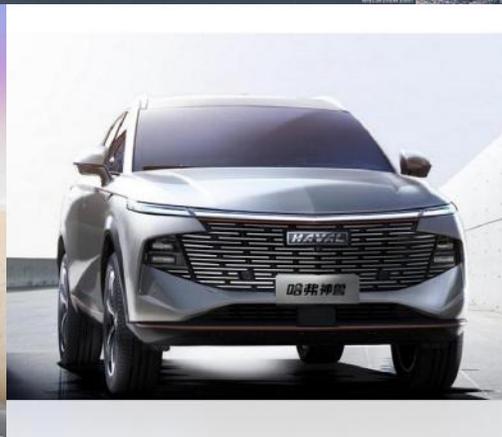
- Illuminated Front Grills will become a part of the Front Lighting Systems. Up to more than 400 single addressable LEDs have to be handled.
- OTA updates will create additional business
- The Headlamp Supplier needs a JV, or additional qualification, to supply full front lighting system if wants to continue to be system supplier Tier 1.
- The new Lighting Concepts show up:
Electronics

Printed LEDs and
Flex Board
Rigid-Flex Mix
Light Guides

Car Lighting 2030



Front Lighting Elements



Lighting

More Front Lighting Elements

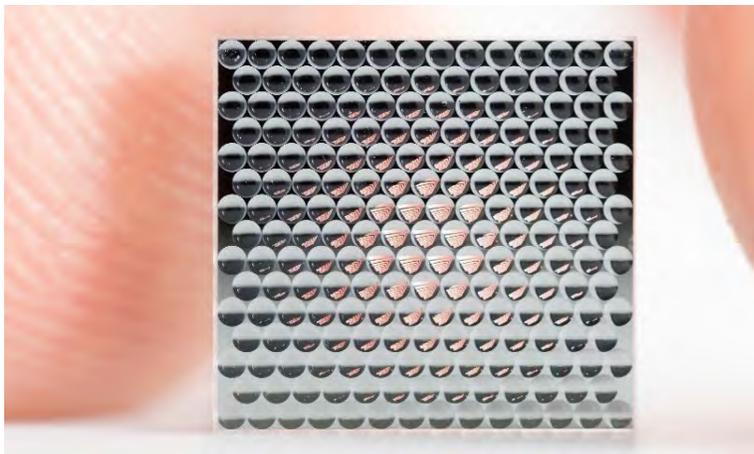




Signal Road Projections and Welcome Light Projections

- Slide Projector (Sharp image in one distance)
- MLA (Always sharp image)
- DMD Projector (Video capable)

Welcome Lights (with MLA)



Signal Road Projection Ideas



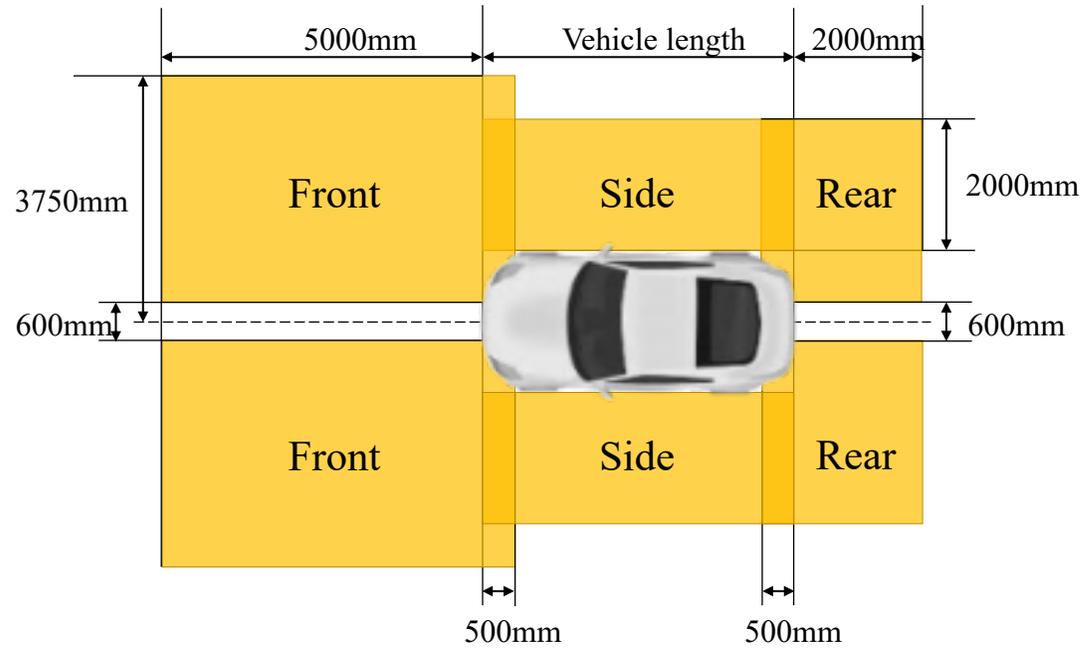
CYCLIST VIEW

STREET VIEW

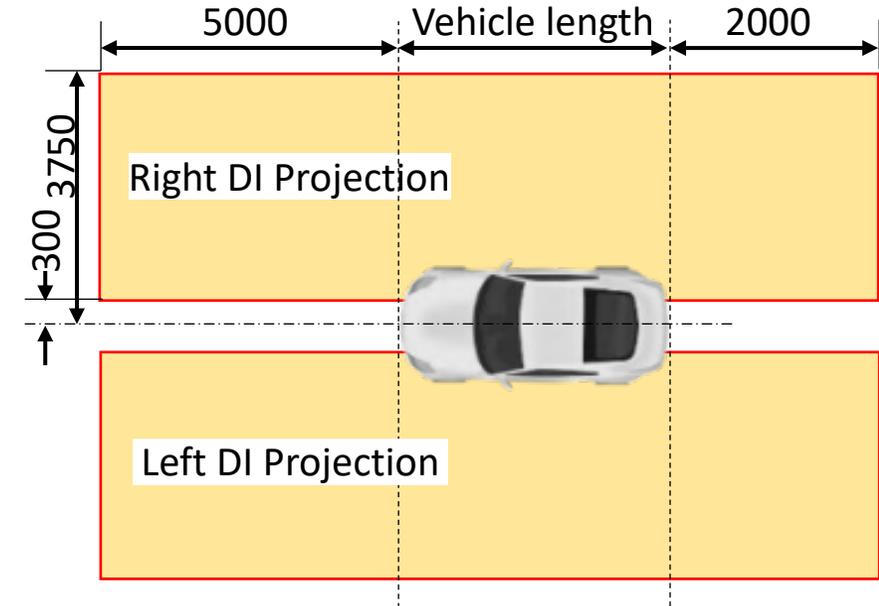


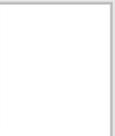
Signal Road Projection Regulation-Reality

Example -1



Example -2



Rectangle/Line	Triangle	Chevron	Circle
 	 	 	 

The next Tasks of the Car Lighting

1. Design is still in Leading Role* for driving innovations

Slim Lights, Hidden Lights, Edge-to-Edge lamps, Lit Gril, Projections, ...

2. Marketing-Influence increases*, pushing the emotional part

Lit Logos, personalized new Lighting Elements, Voice of the Market

3. Engineers must consider the System* to improve safety and performance

All Functions will be adaptive, machine vision research becomes urgent, interdisciplinary collaboration!

4. GTB, SAE and Authorities ensure the safety role of the lighting

Increasing Safety by Innovations works best hand-in-hand with the regulation developing contributors

A vibrant photograph of the Shanghai skyline. The Oriental Pearl Tower is illuminated in purple and pink on the left. In the center, the Shanghai Tower and Shanghai World Financial Center are prominent. The foreground features a historic brick building and a roller coaster. The sky is a clear, bright blue.

Thank you!

See you in Shanghai

November 07 - 08, 2023