



EPIC Online Technology Meeting on Micro-LED for Automotive Lighting

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Dr.-Ing. E.-O. Rosenhahn

Head of Headlamp Innovation

Marelli Automotive Lighting, Reutlingen

01

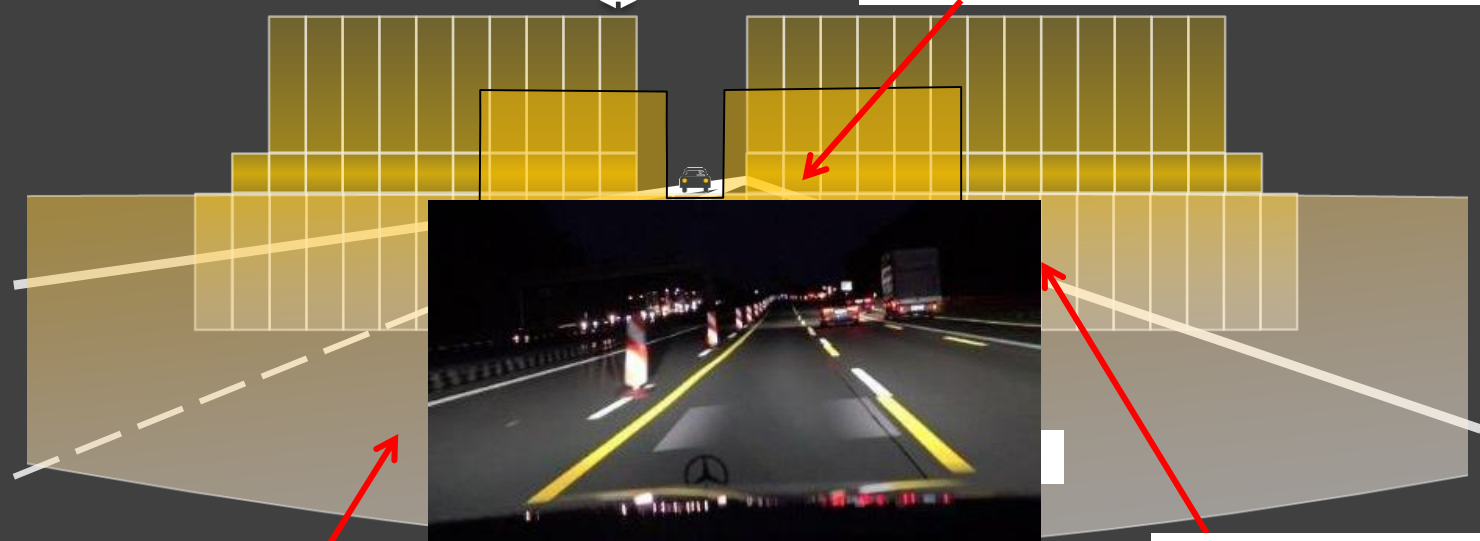
micro-LED Technology for
High Resolution Main Lighting Functions

High Resolution Technology Assistance Road Projections



1° .. 1,5°

high resolution matrix (additional): 20.000 ... 1,3 Mio pixels / headlamp



base light (low beam)

standard matrix light (high beam)

Resolution:	DMD technology	0,01 °
Resolution :	micro-LED	0,1 °

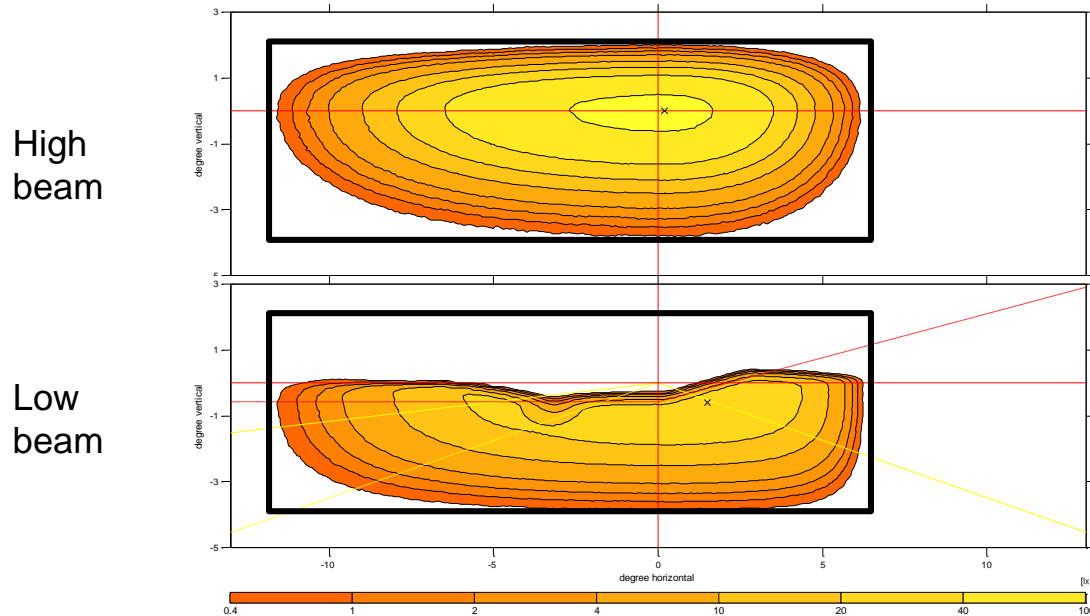
HD Module



- **Light Function HD-Module**

Standard HD module concept

- Exemplary simulations of variable light distributions (microLED only)



Assistance Road Projections

Field of Assistance Road Projections



Assistance Road Projections:

- Usage as assistance function
- Restricted area along the car's trajectory
- Limited maximum intensity

-1° ≈ 40 m distance in front of the car



Examples for Assistance Road Projections

1

guiding elements



2

collision warning



3

speed limit warning



Micro-LED Projection Module

Light Source:

HD Module with micro-LED array:

20.000 ... 25.000 pixels

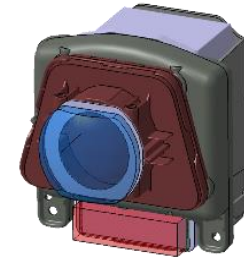
250 lm/mm²

40 μm x 40 μm pixel pitch

OSRAM
Opto Semiconductors

LUMILEDS

NICHIA

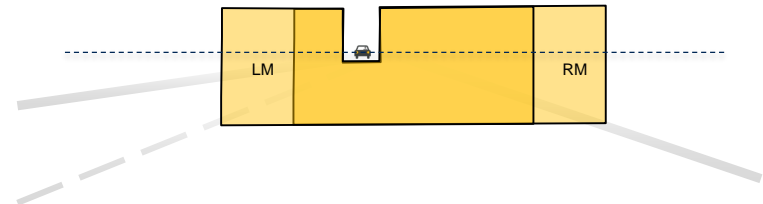


micro-LED projection module

Projection Optics / Lens System:

- Projection lens size: width x height: about 40 mm ... 50 mm
- Anti reflection coating needed to avoid glare
- Projection lens optic properties have to be balanced between: efficiency, sharpness, contrast, costs.

field of illumination:





Thanks!