

FOCUSLIGHT

Never stop exploring

Photonics Solutions for Automotive Lighting

Focuslight Technologies Inc.

Dr. Harald Pier, 2024-02-26

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TEAM 2024

Starting
a **New Journey**
into a **United**
Photonics Future!



The legal entity name
SUSS MicroOptics SA
is now officially changed to
Focuslight Switzerland SA

Visit us at



Booth: #9

▶ Feb 27-28, 2024
Hilton Munich Airport Hotel,
Munich, Germany



Booth: W2.2120

▶ Mar 20-22, 2024
Shanghai New International Expo Center,
Shanghai, China



Booth: #1805

▶ Mar 26-28, 2024
San Diego Convention Center,
San Diego, California, USA

Vision

FOCUSLIGHT
Never stop exploring

**To unlock the potential
of photonics to enhance
and enrich people's life**

Key Facts & Figures



Employees
>900



Yearly Revenue Proportion
Invested into R&D
~16%



Patents Valid
Worldwide
>430



Facility Building
Worldwide
>43,000m²



Clean Room
Worldwide
>11,000m²



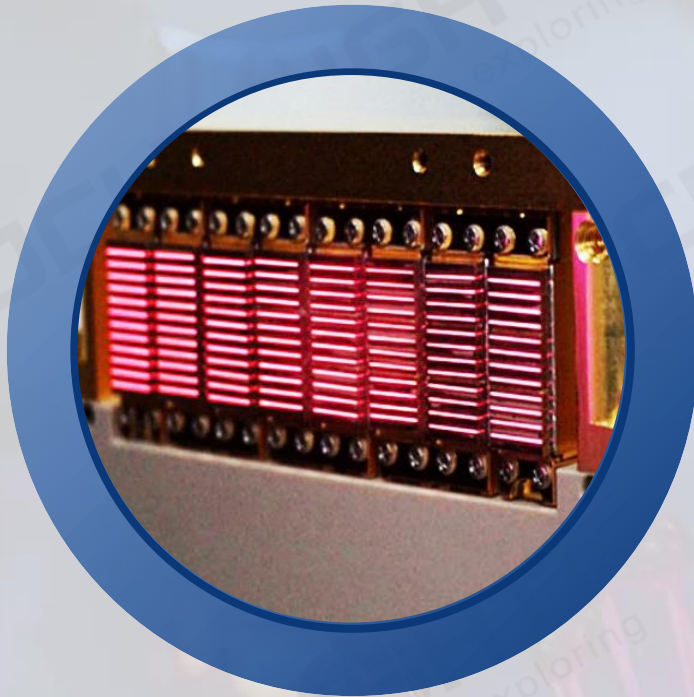
ISO 9001
ISO 14001
ISO 45001
IATF 16949
Certified

Focuslight Overview

- Founded in 2007 by Dr. Victor X. Liu, headquartered in Xi'an, China.
- A fast-growing company that develops and manufactures **high-power diode laser components and materials** (photon generation) and **laser optics** (photon control) used in various industries and applications.
- Business scope is being extended by developing and manufacturing **photonic application modules, assemblies, and sub-systems** (photonics application solutions) with a focus on automotive, pan-semiconductor, and medical & health application solutions.
- Public listed company in the Shanghai Stock Exchange (Ticker Symbol: 688167).



Products and Businesses



**Photon
Generation**



**Photon
Control**



**Photonics
Application
Solutions**

Products – Automotive Application Solutions

Flash LiDAR Transmitter Modules

Line Beam Transmitter Modules

AL01 (Mass Production)



Auto-grade DPSSL Flash Tx

AT02 / AT02 Pro
(Engineering Sample)



Auto-grade VCSEL module for DMS (Driver Monitoring System)

AX02 Pro (Engineering Sample)



VCSEL Flash Tx 700W

LE02 Pro
(Engineering Sample)



905nm 700W EEL Line Beam Tx

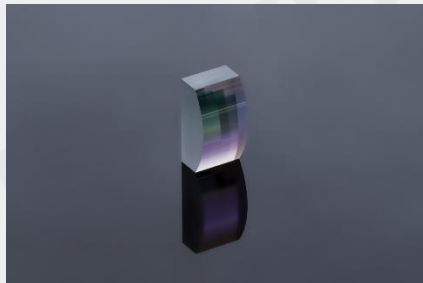
LX02 (Engineering Sample)



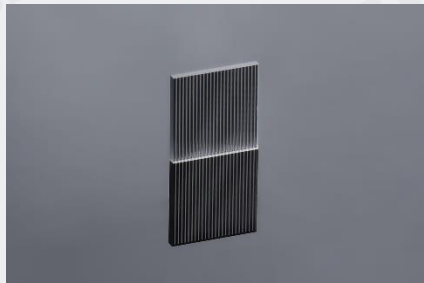
VCSEL Line Tx 1000W

Optical Components and Assemblies for Automotive

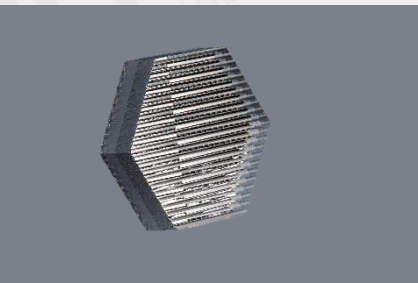
EEL FAC Collimators



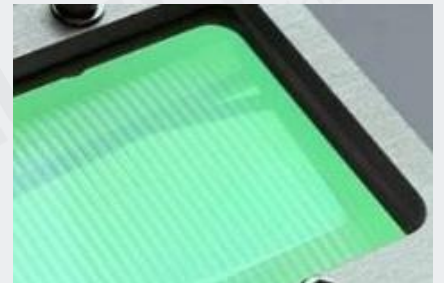
Auto-grade Diffusers and Homogenizers



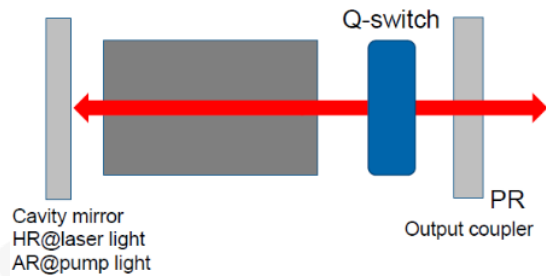
Optics for Automotive Projection and Lighting



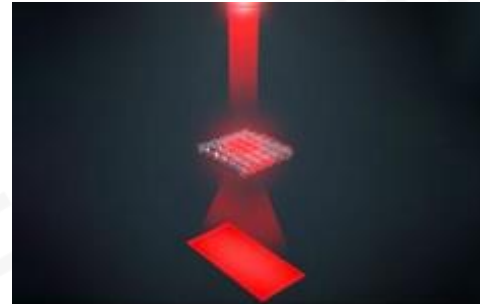
Customized Optical Assemblies



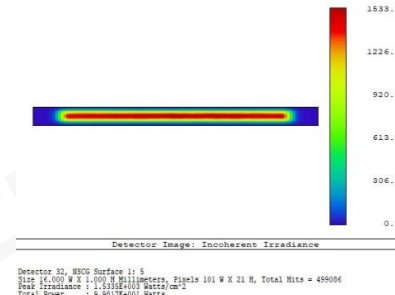
Core Competence – Automotive



Q-switch DPSS Laser
Transmitter Design



Advanced ROE Beam
Shaping Optics Design



Design and
Simulation



High Power Diode Laser
Design and Assembling



Automotive Grade Laser
Design and Qualification



Optical Assembly
Automation



Laser Testing and
Characterization



Laser Assembly
Automation

Why ?

- Styling
- Size
- Flexibility
- Performance!

Ground projection:



Headlamps:

“ narrowest headlight aperture of any vehicle to date ”

Sept. 2020,

<https://www.whichcar.com.au/car-news/lucid-air-in-detail>

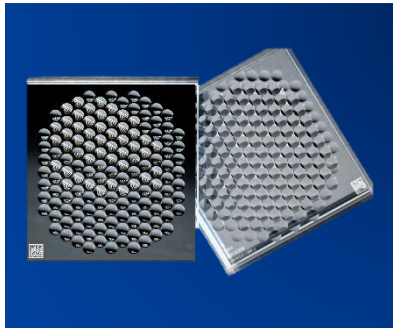


Design examples: on the road

Source: Lucid.com



Source: genesis.com



Modular platform for next generation front lighting:

Standardization on wafer level enabling

- Semiconductor Economies of Scale
- Reduced NRE Costs
- Faster Time to Market

Micro lens technology enables

- Reduced integration space
- Simplified supply chain
- Highest degree of customization and freedom of design

Platform owned by Focuslight

- Benefits from improvements, new features
- Inspires customer designs
- Royalty-free if manufactured by Focuslight
- Benchmark and test platform

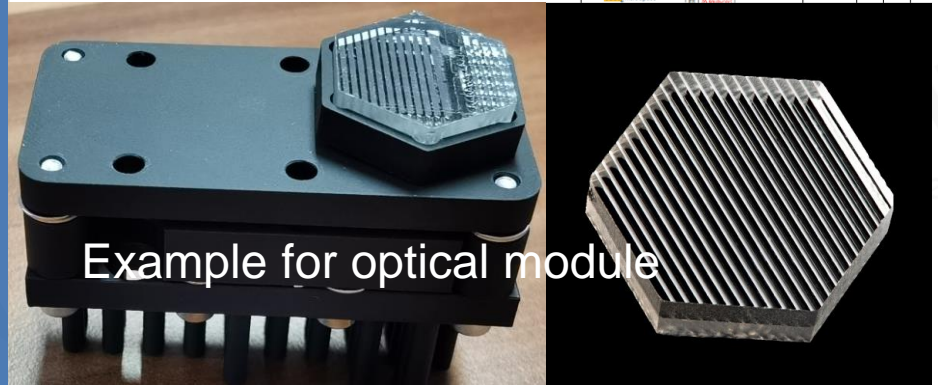
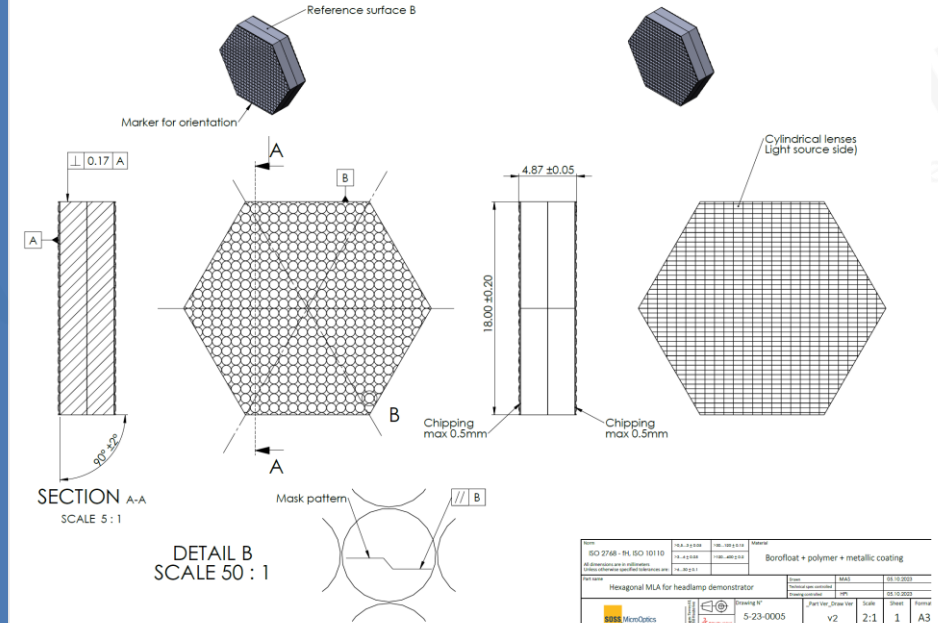


MLA Platform for

- High Beam
- Low Beam
- Low Beam Spread Extension Left/Right
- Low Beam Spot
- Future: DRL, Turn Indicator....

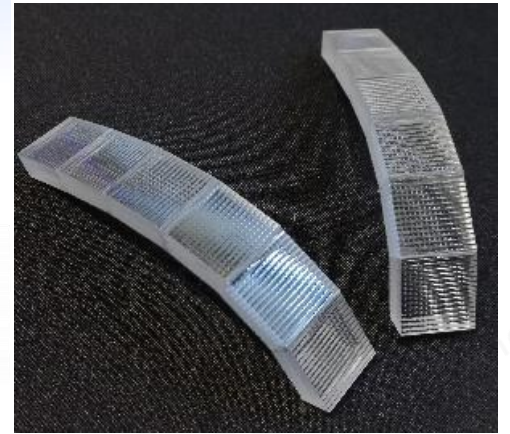
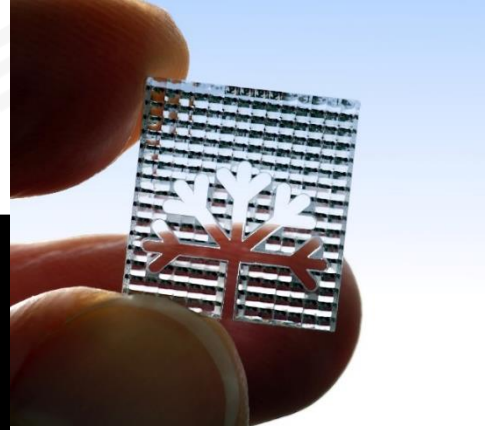
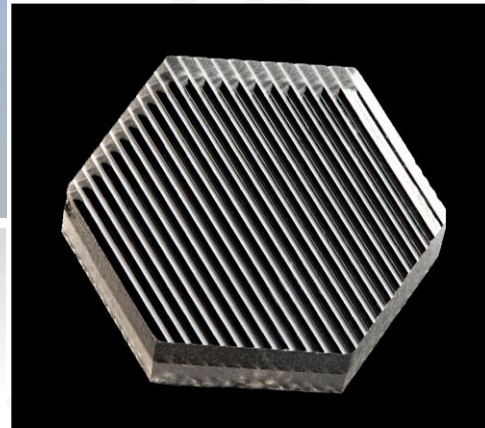
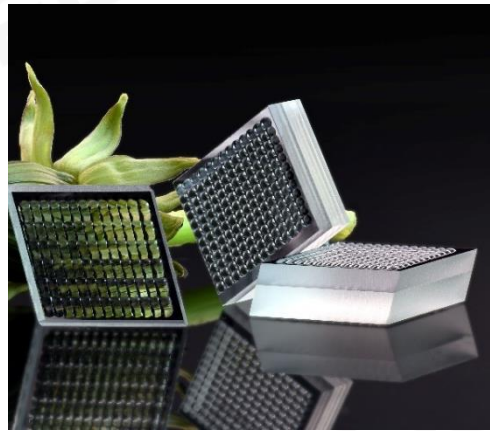
MLA Platform comes in three flavors

- **MIRALUZ pure:** Predefined MLA shapes
- **MIRALUZ form:** Custom designed MLA shapes
- **MIRALUZ premium:** Full individualization



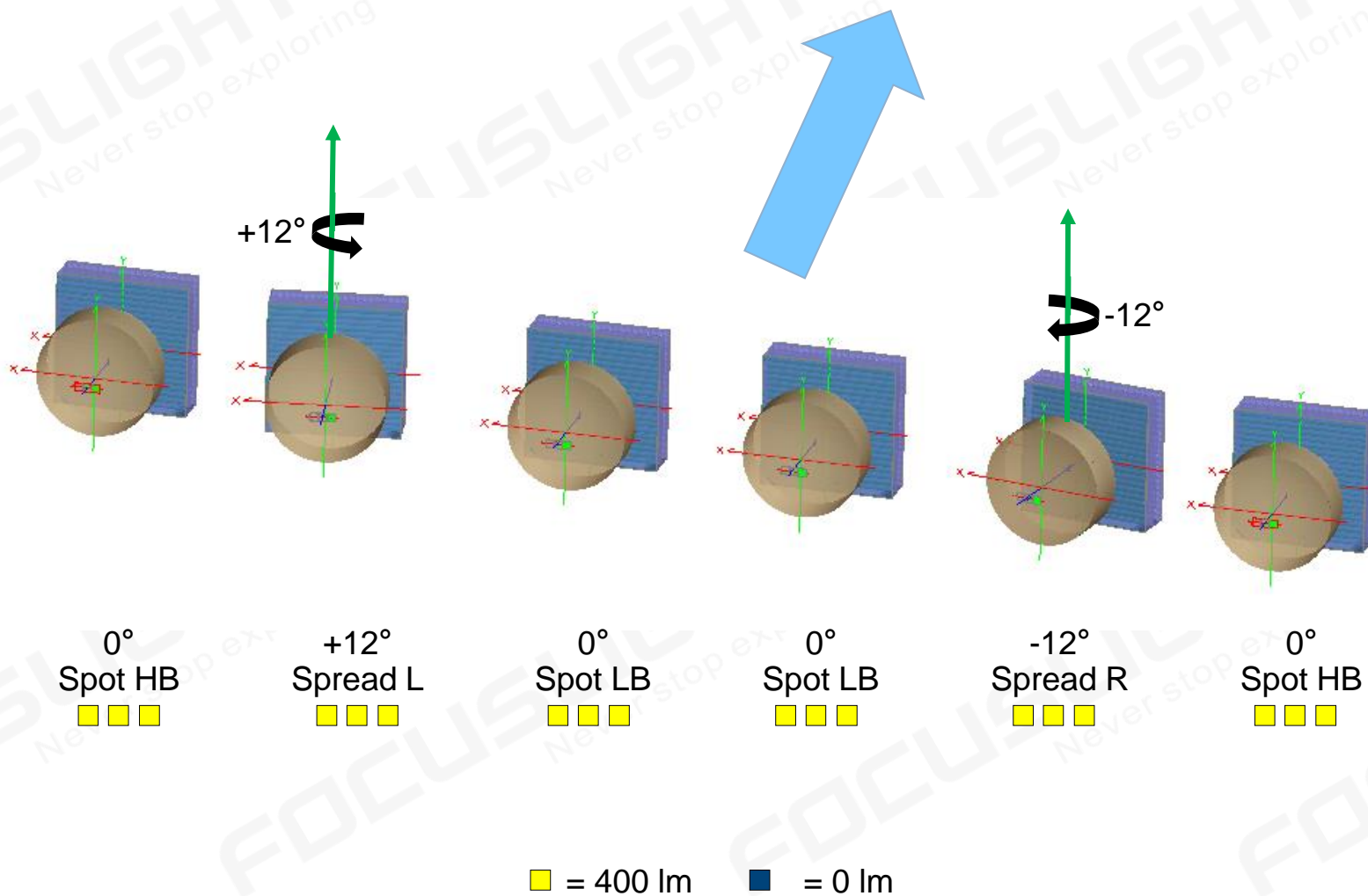
All including detailed optical simulation data to feed into your models

Design possibilities with MIRALUZ



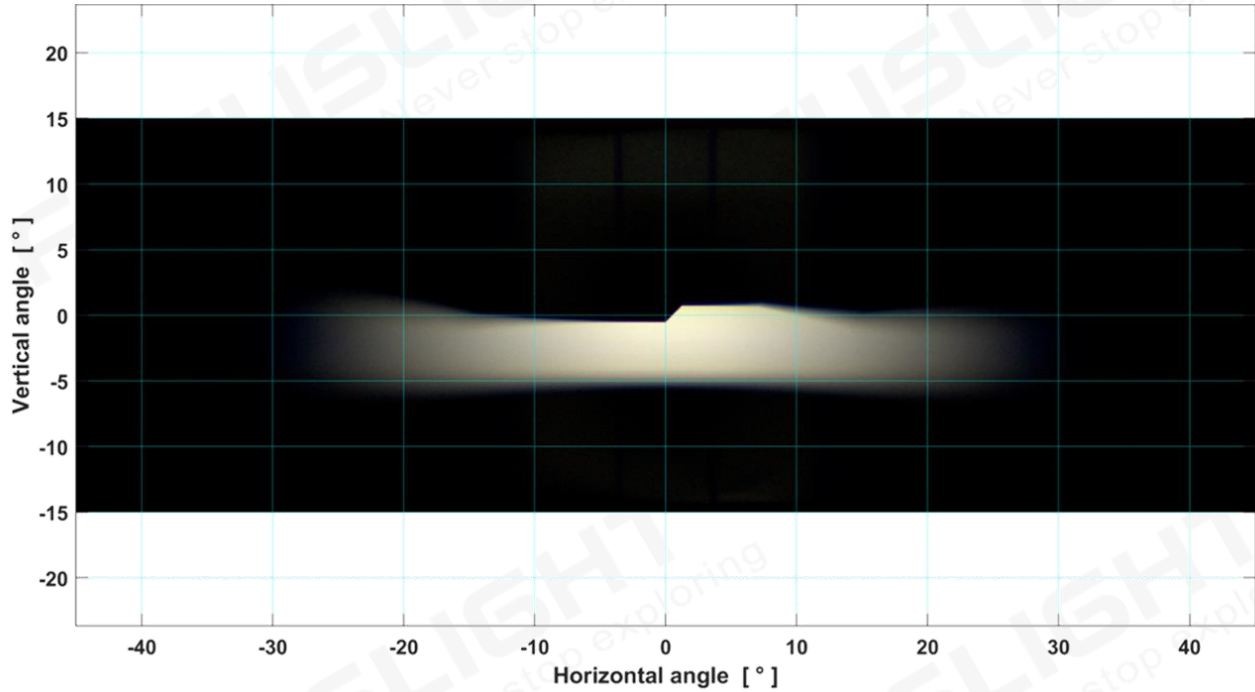
MIRALUZ: Optical System Example

Spherical detector at 25 m distance

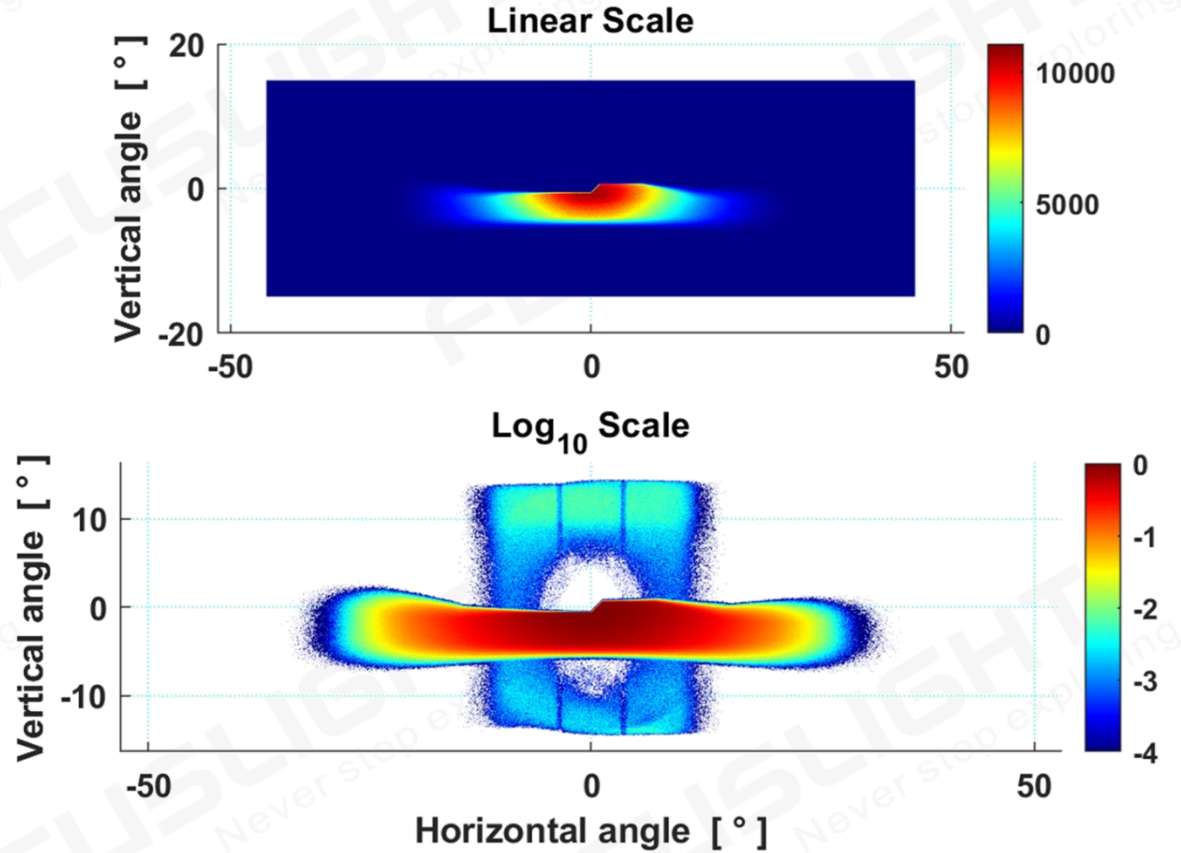


MIRALUZ: Simulation Spot LB

Projected Headlamp in True Color

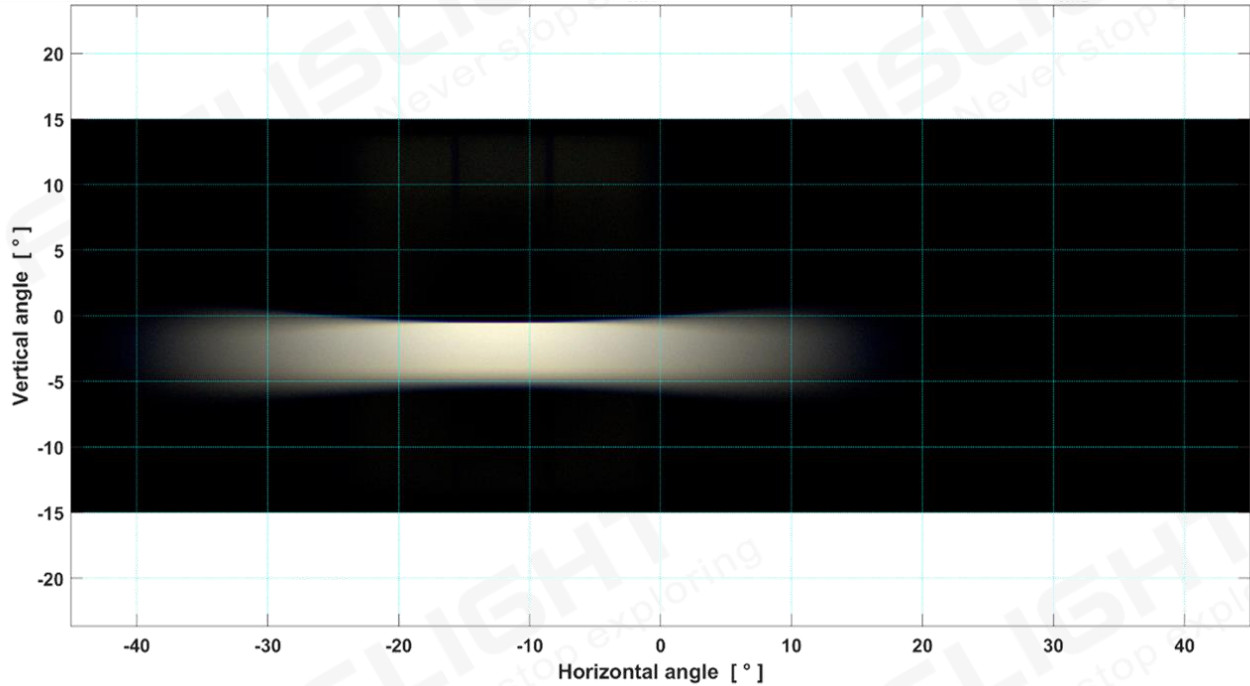


Projected Headlamp Illuminance

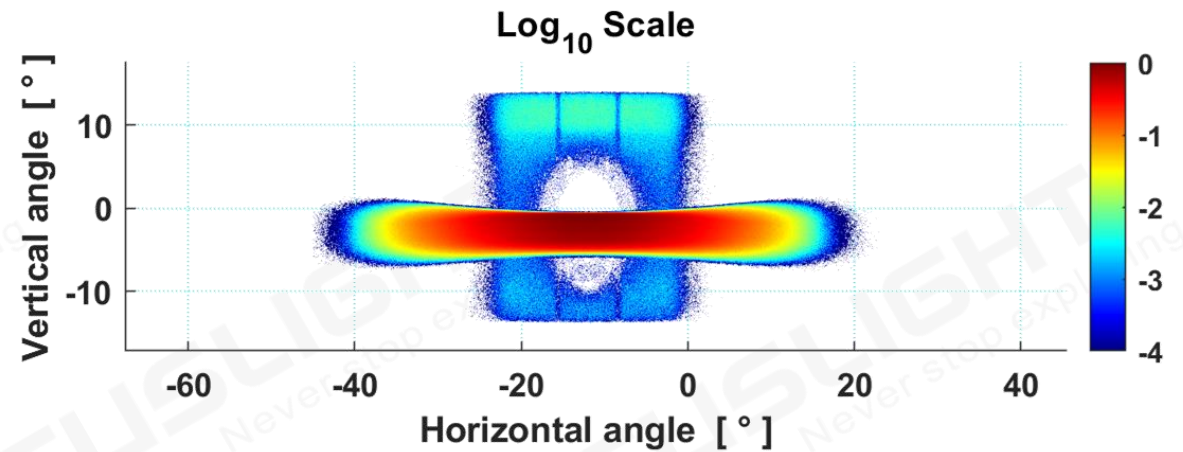
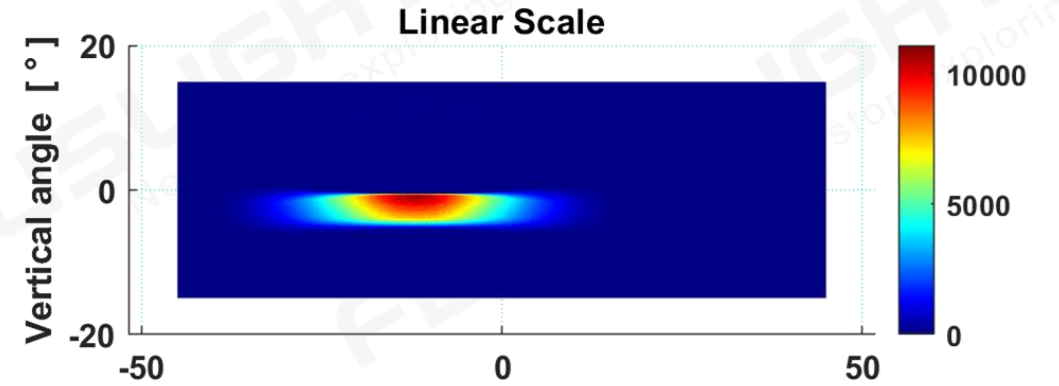


MIRALUZ: Simulation Spread L

Projected Headlamp in True Color

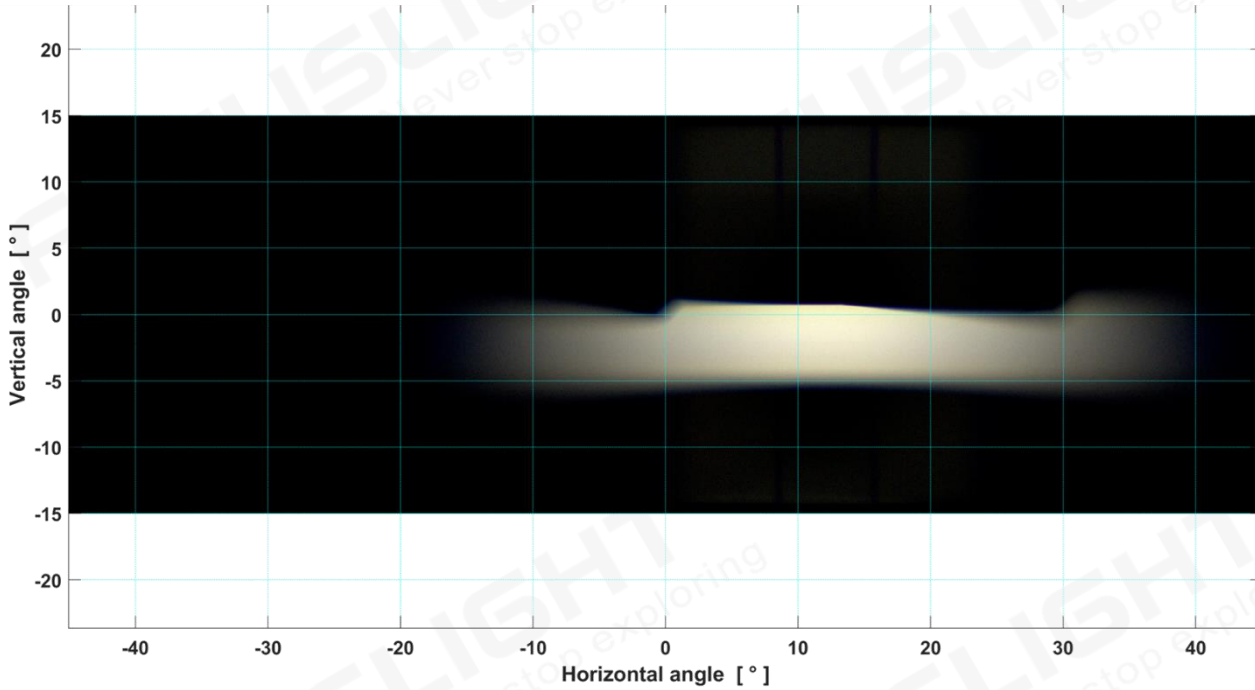


Projected Headlamp Illuminance

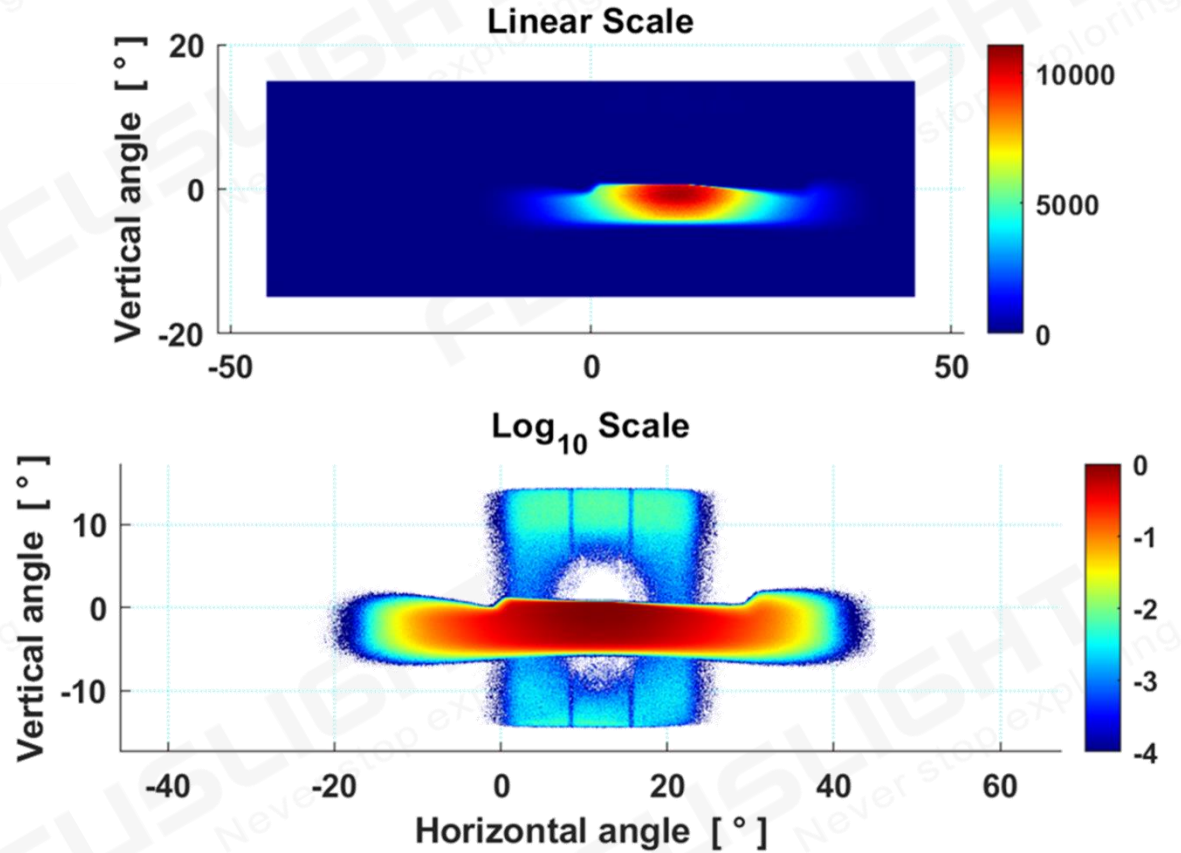


MIRALUZ: Simulation Spread R

Projected Headlamp in True Color

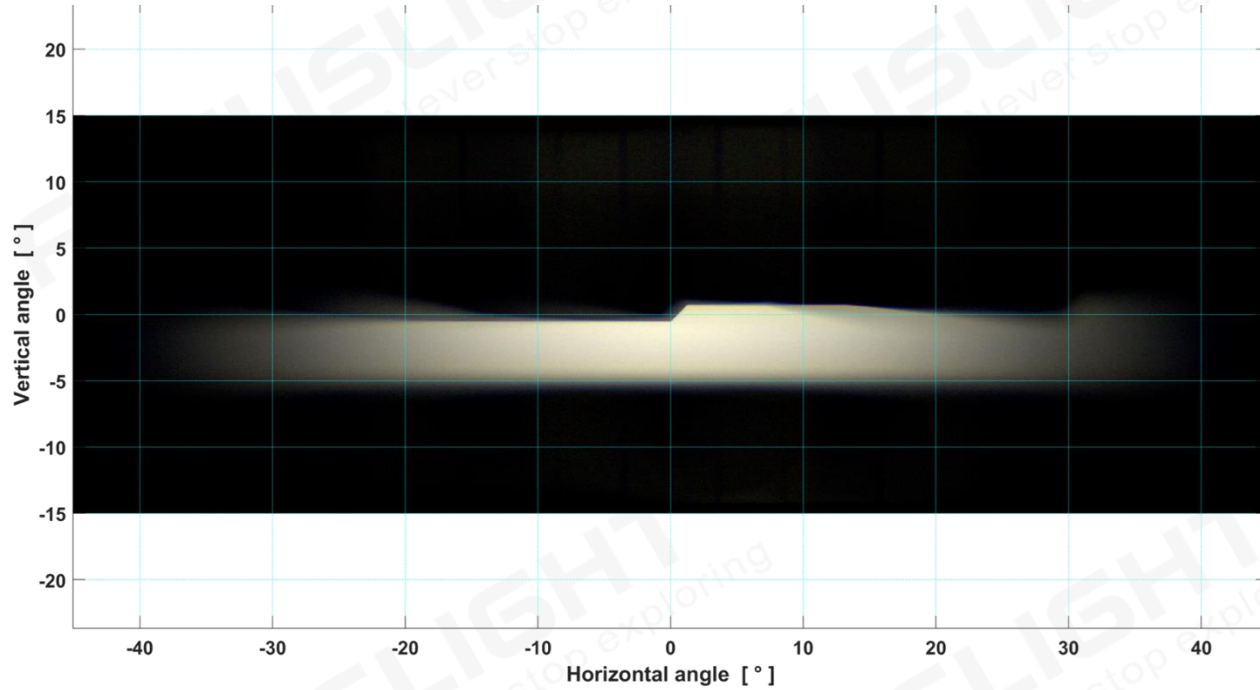


Projected Headlamp Illuminance

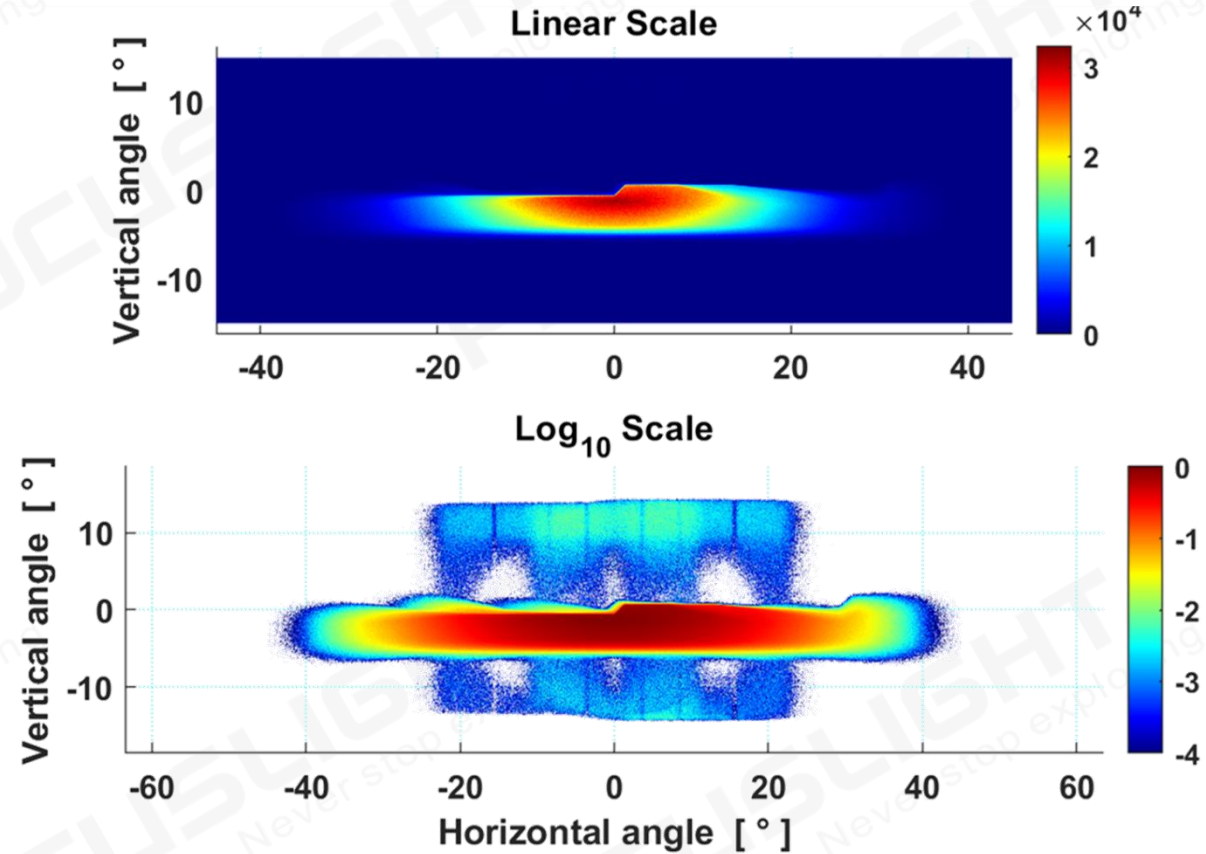


MIRALUZ: Simulation Full LB

Projected Headlamp in True Color



Projected Headlamp Illuminance



THE EPIC QUESTION

What can we do for You?

- Support in your design activities
- Fast-track development of your own MLA-based headlamp solution
- Support in modularization, manufacturing
- Differentiate yourself

What can You do for us?

- MLA is a key component in an optical system, but other components are important as well
- We are interested in learning about new possibilities in (optical) prototyping, miniaturization, light generation
- Styling and solution trends
- Benchmarking

Dr. Harald Pier

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***Or contact Focuslight at
sales@focuslight.com***

THANK YOU



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BACKUP

“Lucid further advances design with its ultra-slim micro-lens array LED headlamps. They produce a light pattern that's as bright, white, and uniform as the benchmark S-Class headlamp, but the overall package is just 40 percent as big, and they don't require motors to provide cornering illumination.”

<https://www.motortrend.com/news/lucid-air-2022-car-of-the-year/>