Glass Optics for UVC LED Applications

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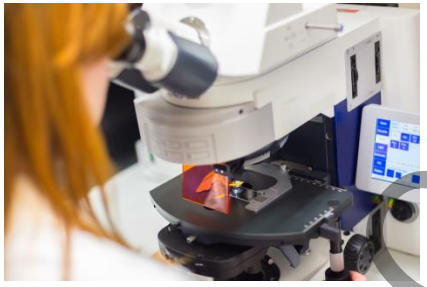
UVC Applications

- How do UVC LEDs fit into current applications?

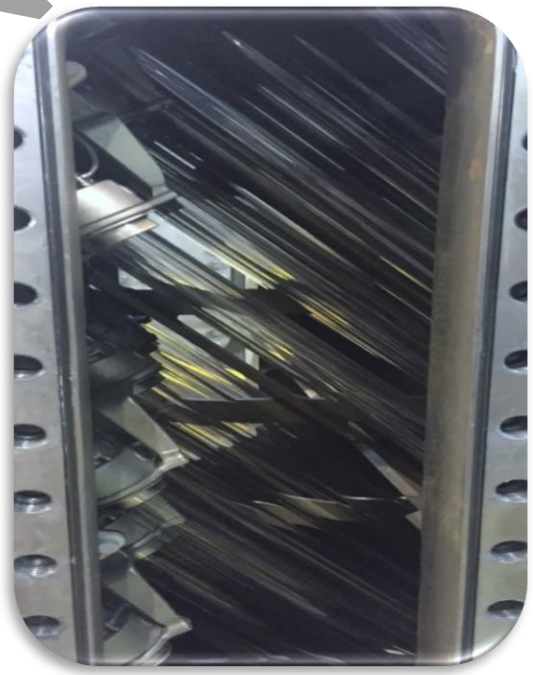
Analytical Instruments	Laboratory Testing	Phototherapy	UV Curing	Counterfeit Detection	Water & Air Purification




Traditional Technology

Traditional Lamps

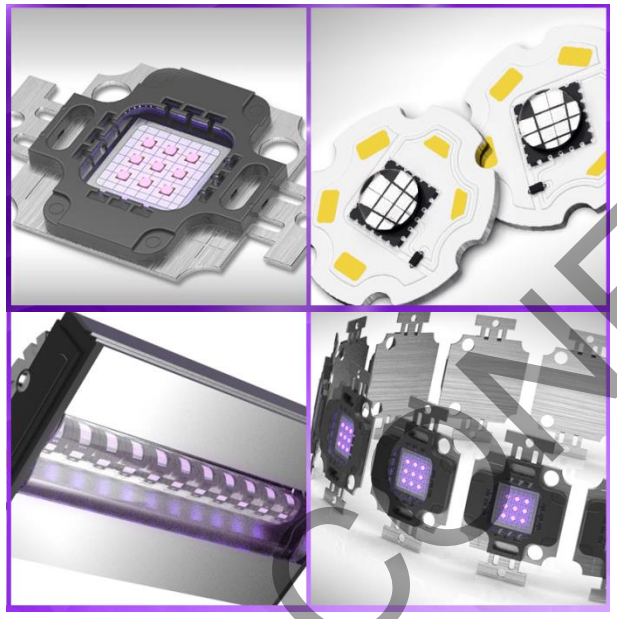
Quartz Sleeves and Tubes

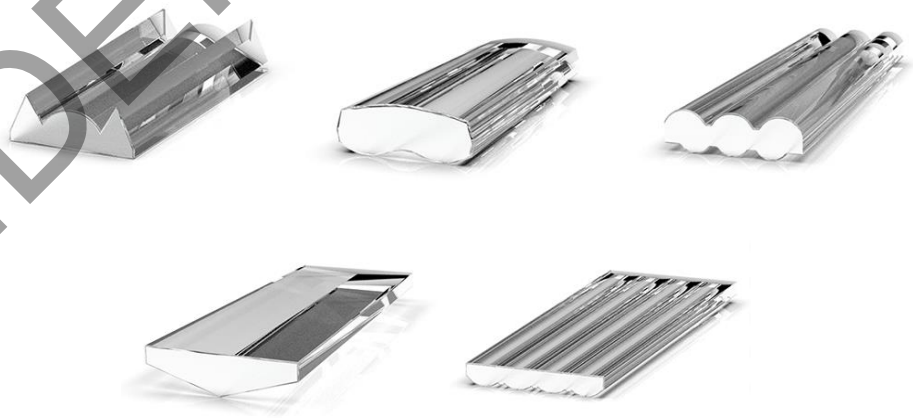


Enabling Technology: Breaking the Mold

UVC LEDs

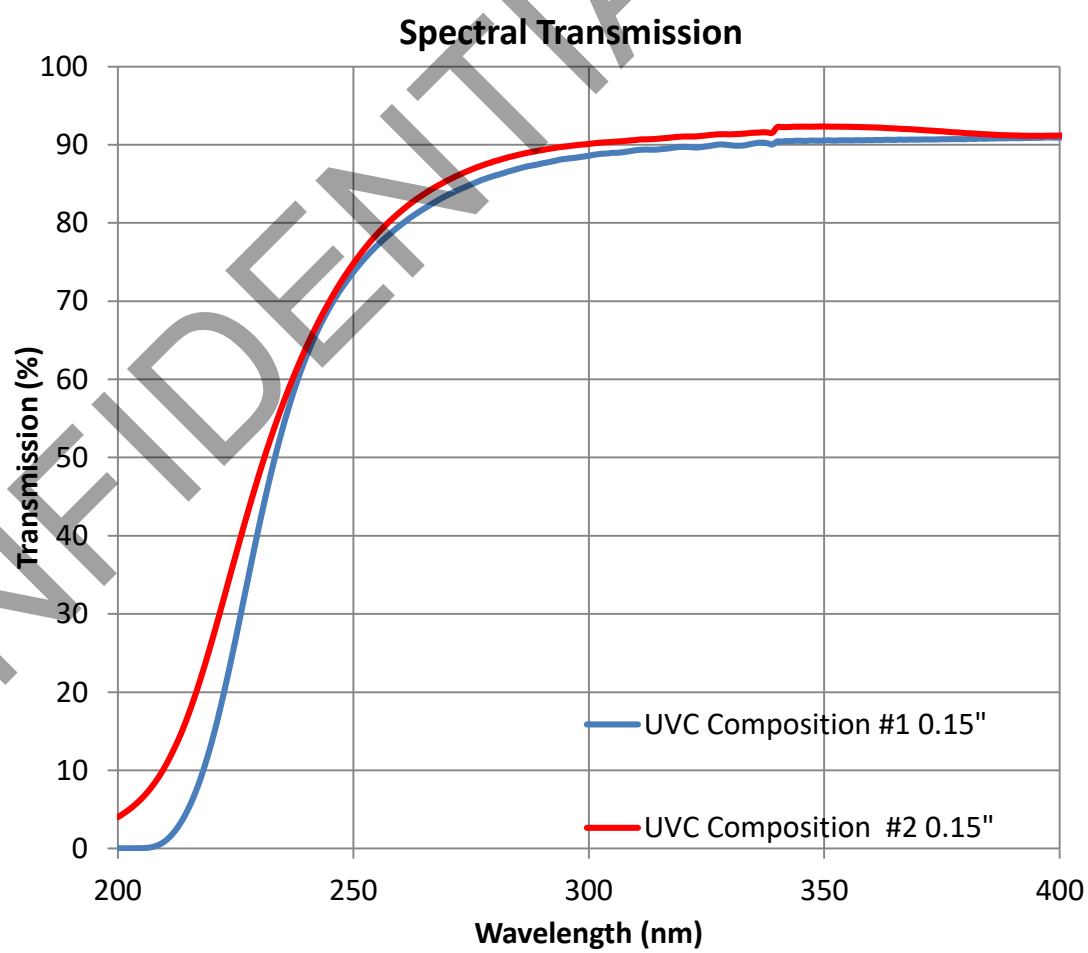
Molded Glass Optics



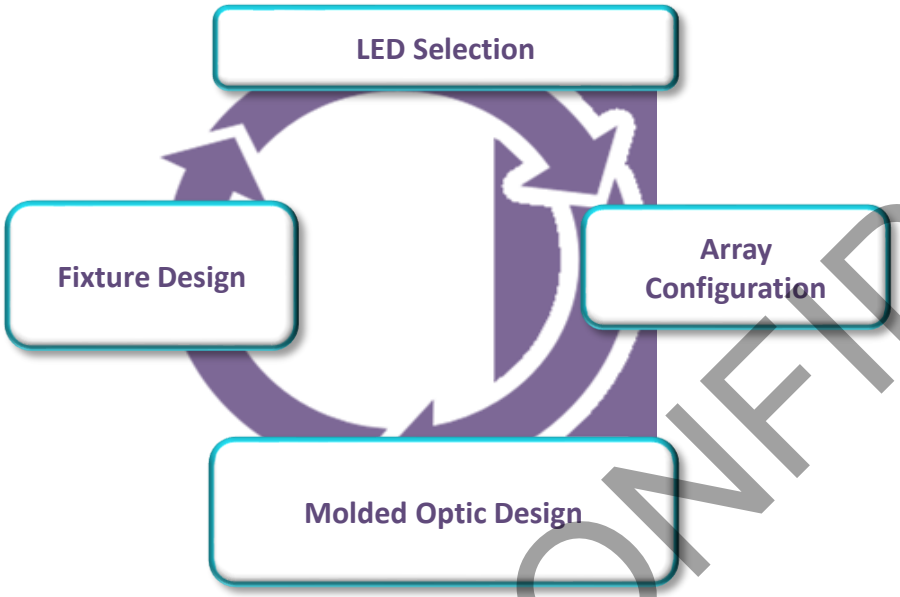


Moldable Glass

	#1	#2
CTE (E-7/°C)	81	34
Temperature Resistance	350°C 660°F	450°C 840°F
Thickness Range	0.100-10“ 2.5-250mm	0.100-5“ 2.5-125mm



What are the possibilities?



UV LED and Optics promote:

- Design flexibility
- Optimized solutions
- Efficient design solutions

Today, we will look at unique ways to use UV LEDs and optics.

SIMULATION #1

CIRCULAR SURFACE

Case Study

Desired Performance:

- Homogenous exposure to UV energy

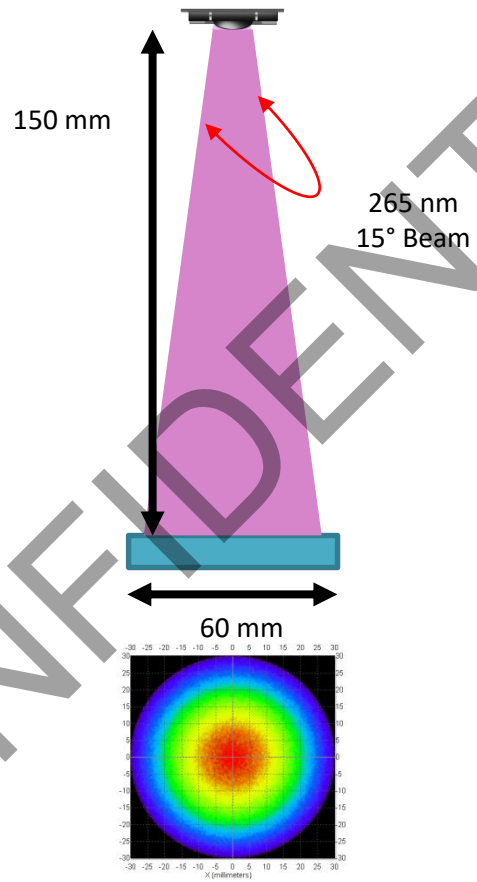
Target Area:

- 60 mm diameter, circular area

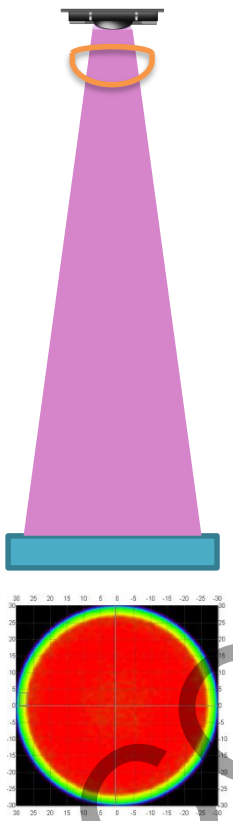
Applications:

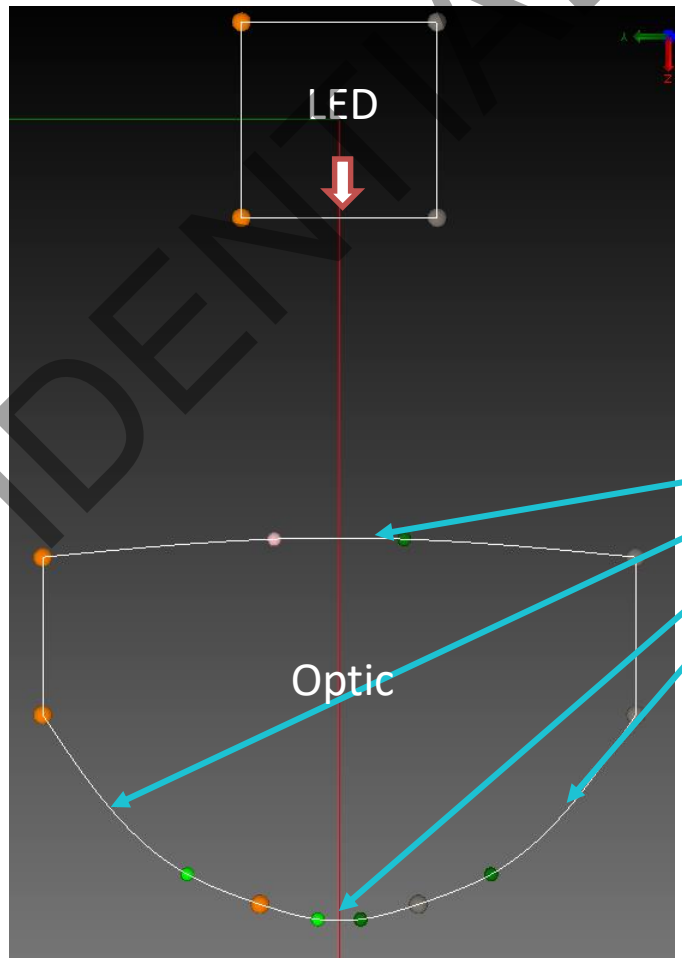
- Laboratory testing
- Sample exposure
- Dish or equipment disinfection

Optical System



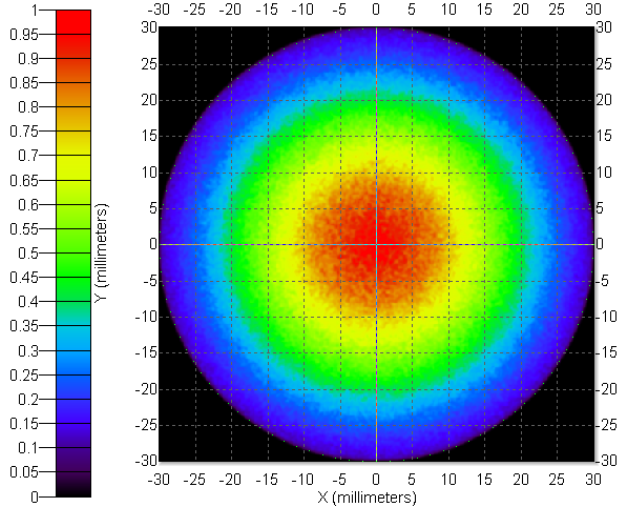
Molded Glass Optic

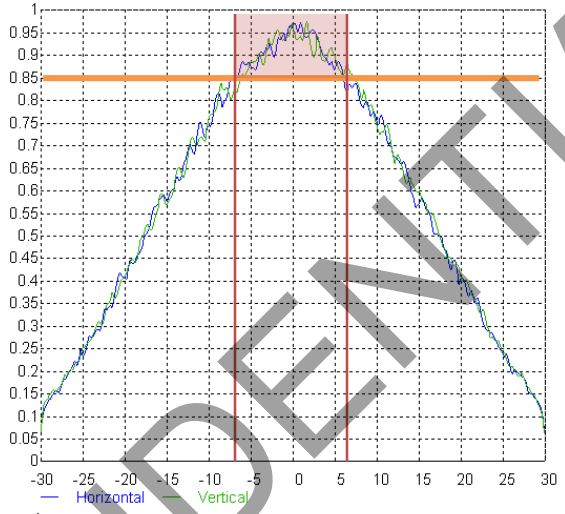


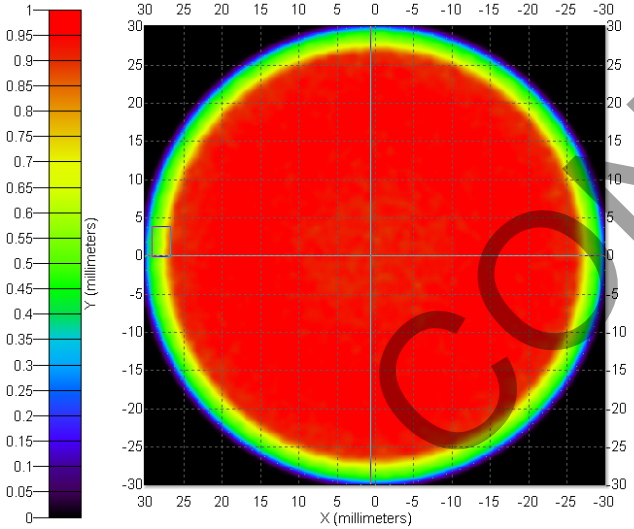


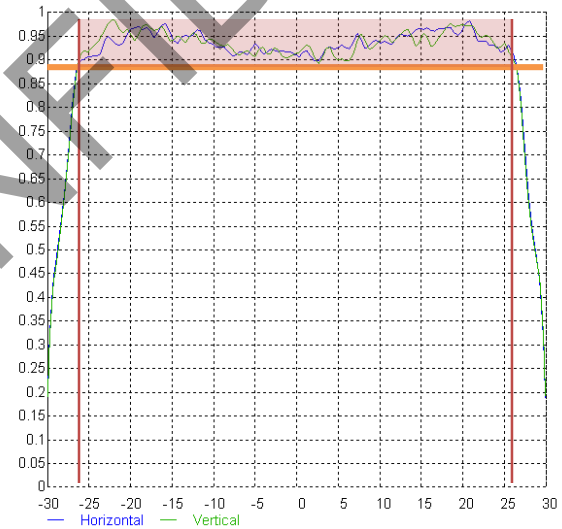
3 different freeform curvatures not defined by functions or radii

Results (10 million rays)









	LED	LED with Optic
Efficiency (F/EF)	87.1%	83.9%
Average Flux	43.1%	85.2%
Uniformity (%90)	21.6%	88.3%

SIMULATION #2

SQUARE SURFACE

Case Study

Desired Performance:

- Homogenous exposure to UV energy

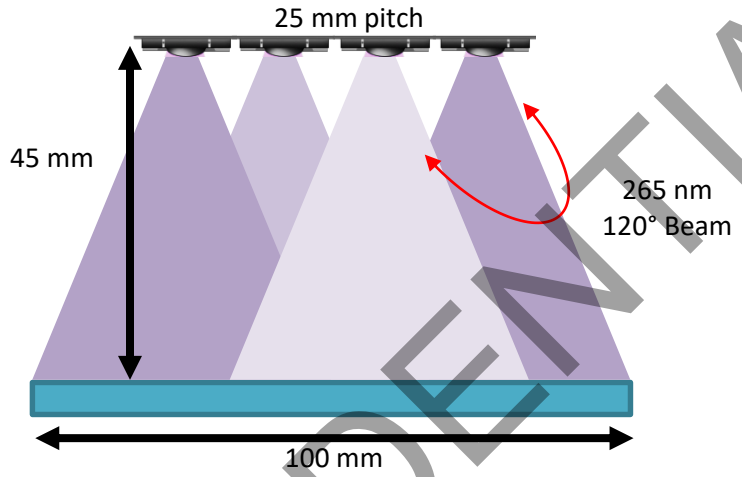
Target Area:

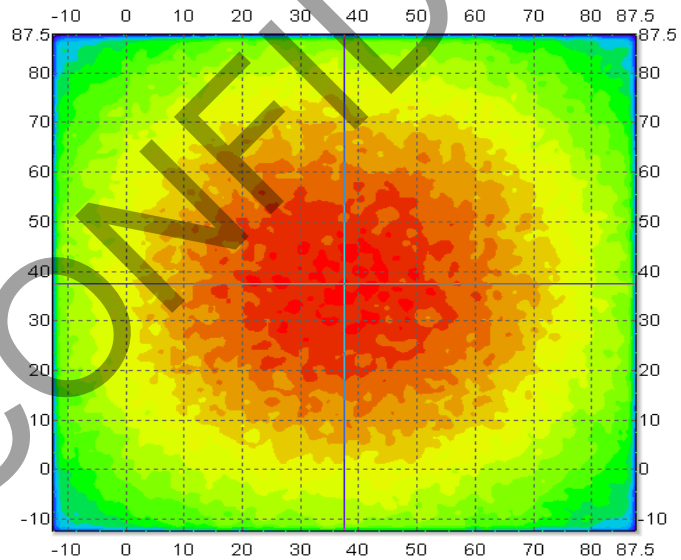
- 100 x 100 mm area

Applications:

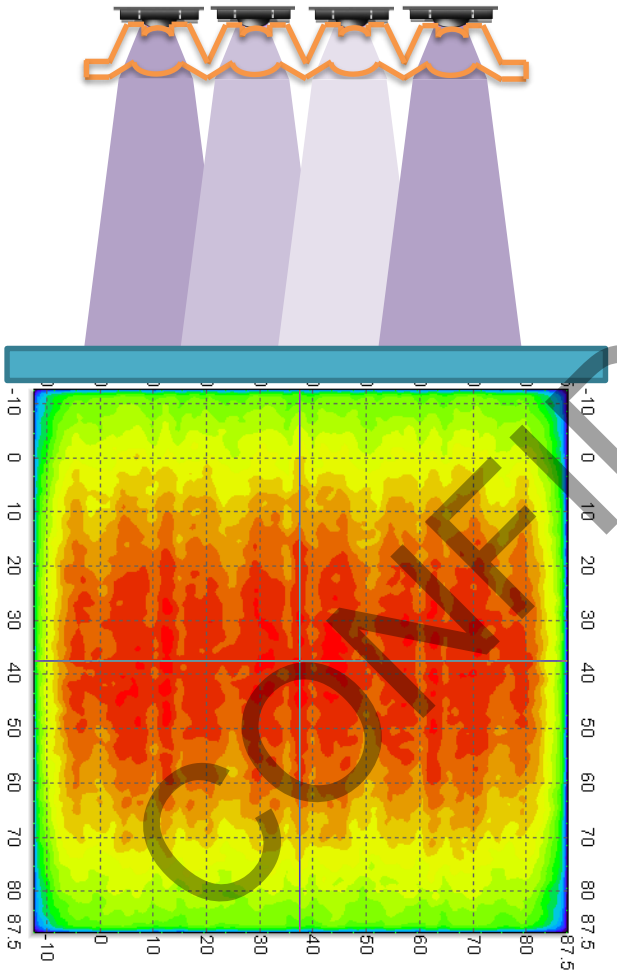
- Laboratory testing
- Sample exposure
- Item disinfection

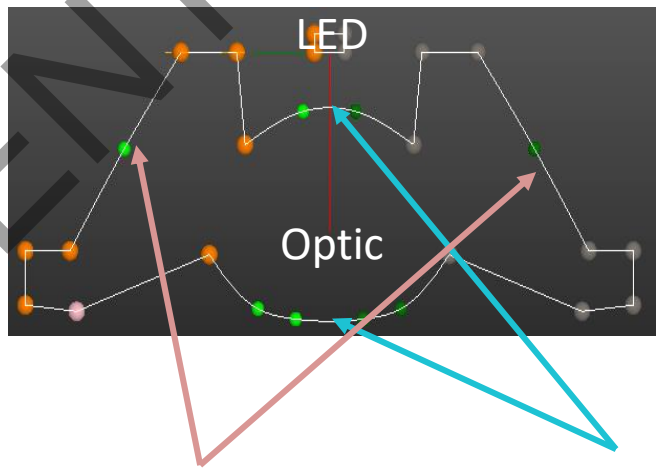
Optical System





Molded Glass Optic

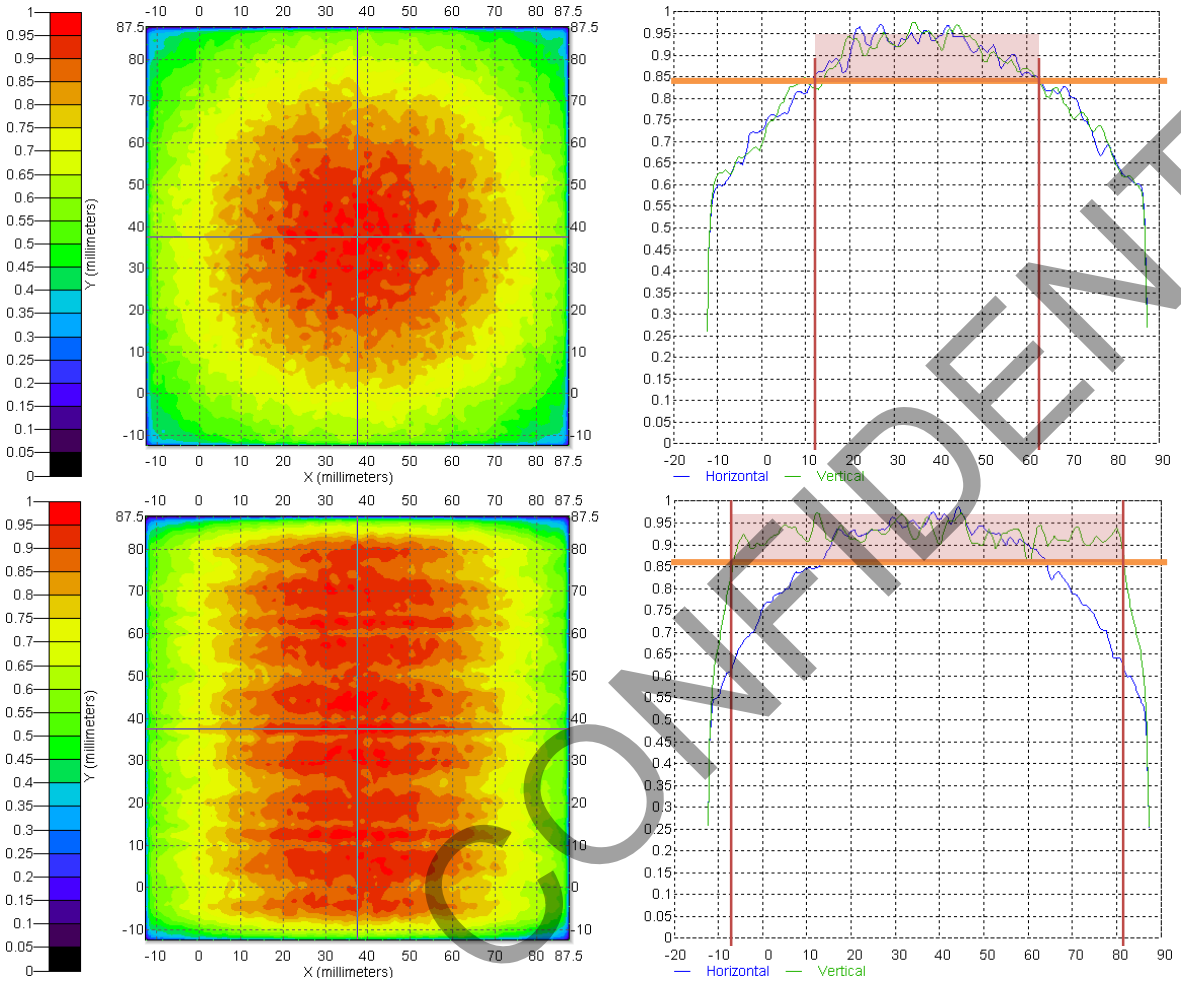




TIR surfaces

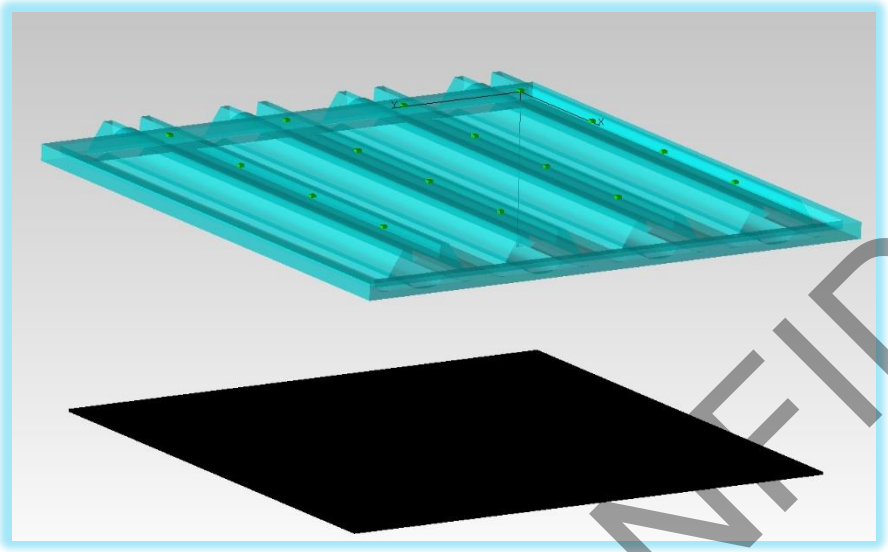
2 freeform surfaces

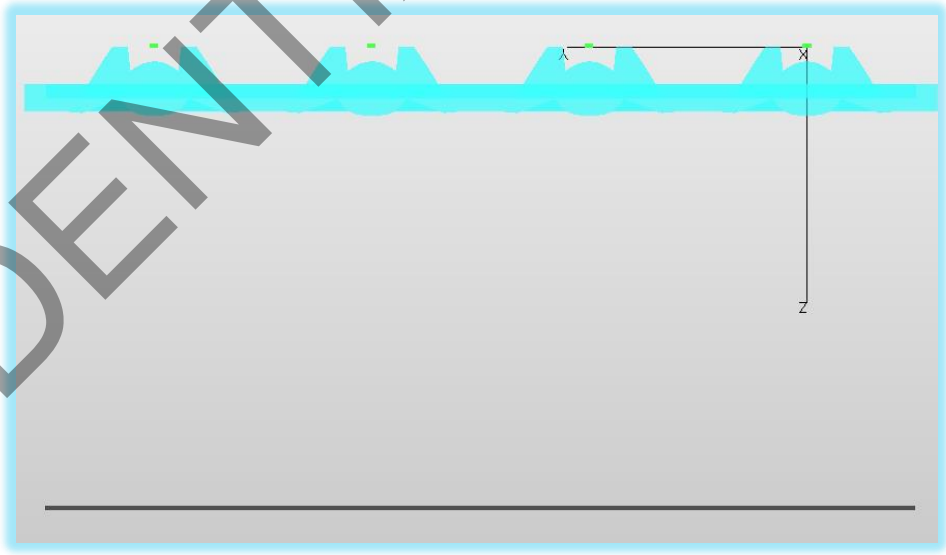
Results (8 million rays)



	LED	LED with Optic
Efficiency (F/EF)	39.2%	61.8%
Average Flux	70.4%	76.3%
Uniformity (%90)	45.5%	80.9%

Molded Glass Optic

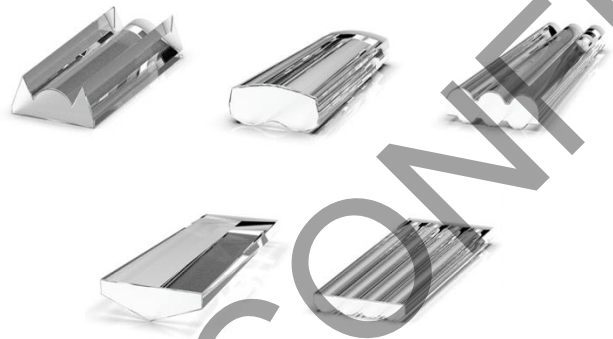


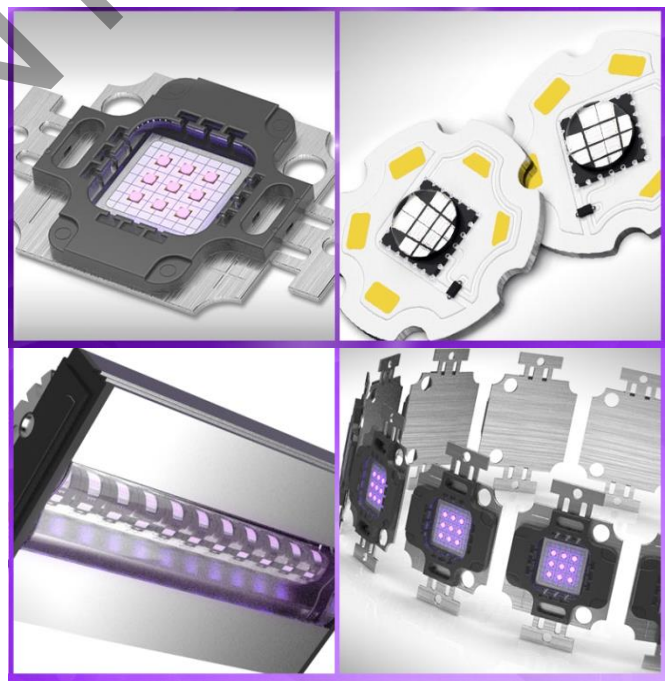


Optimize Your Device with the Latest Technology

Light control for improved testing and application results:

- Significant gains in uniformity
- Increased flux on target surface
- Increased fixture efficiency





Thank You!

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