Biaxial Lens Optimization

Biaxial lens optimization

Model in TracePro (ex3.oml)

Screen
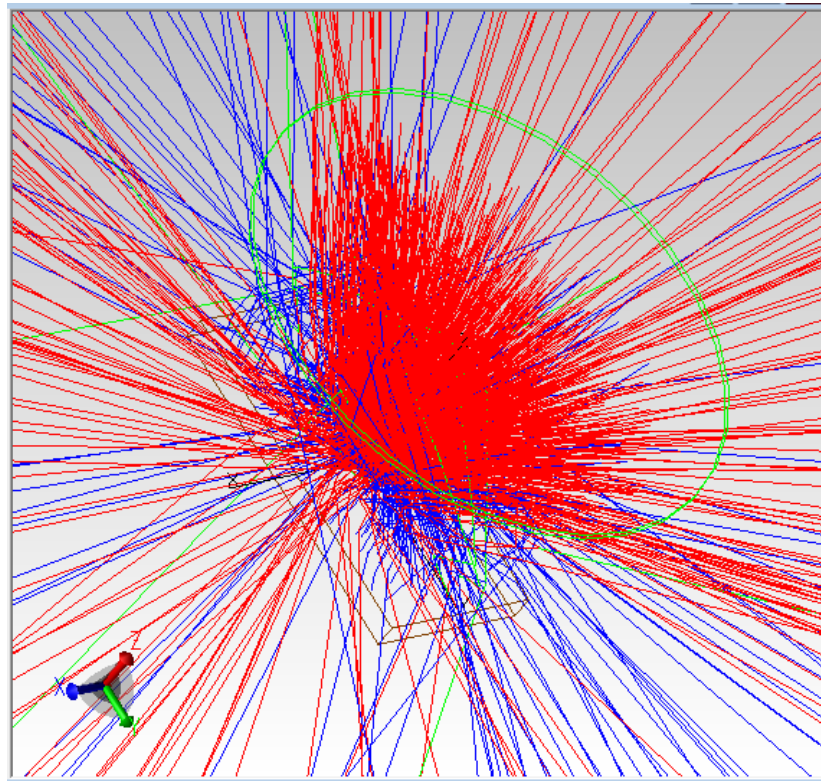
3 LED sources (surface source): Red, Green, Blue
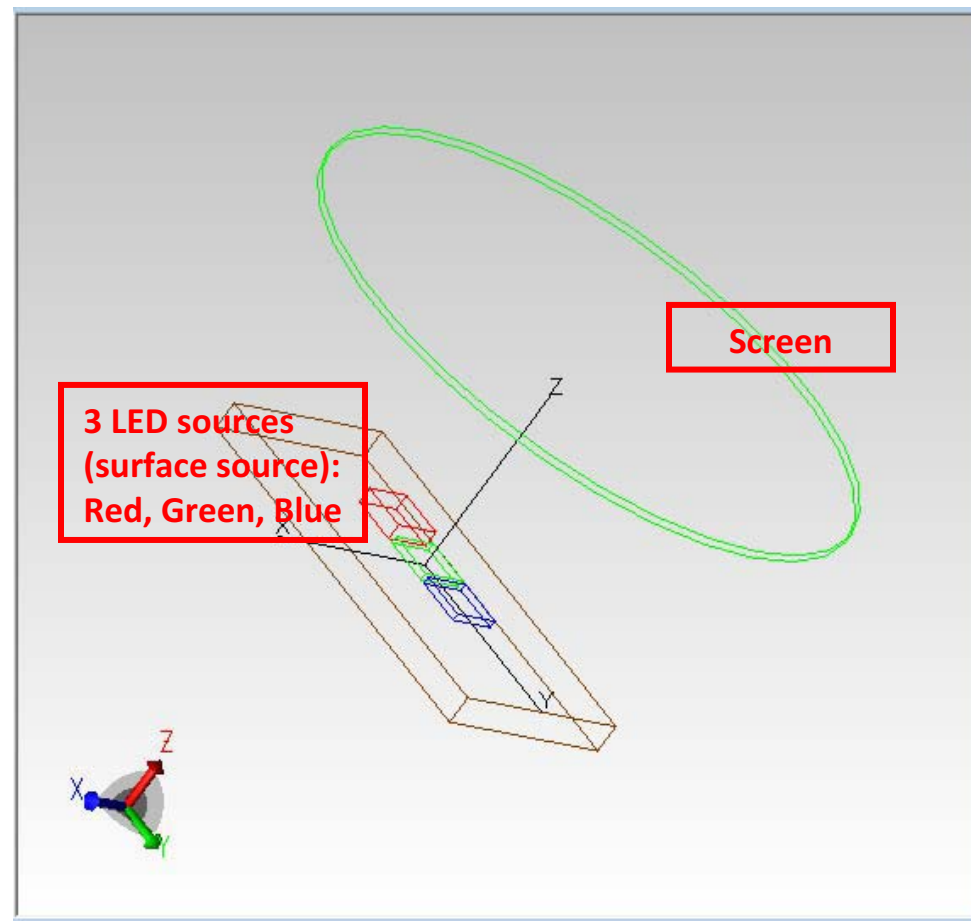
Biaxial lens optimization

Target

– Maximize the total flux on the detector surface

Biaxial lens optimization

Biaxial lens optimization

We choose y shifts for the two control point as the variables, which is enough to vary the resultant profile of the bi-axial lens.

Biaxial lens optimization

The only operand for the optimization target is the total flux on the detector surface.

Biaxial lens optimization

Scheme editor

```
intersect("Epoxy","mask")
```

Objects

Output?	Object ID	Name	Mat. Catalog	Mat. Property	Geo. type	Linked Le...
		Pre-processor	▼	▼		
☑	0	Epoxy	Plastic ▼	KER2500 ▼	Biaxial ▼	Object...
☐	1	Object 1	▼	▼	RadialSym... ▼	▼
☑	2	mask	▼	▼	Extrusion ▼	5.4	intersect("Epoxy","mask")
☑	4	airgap	▼	▼	Extrusion ▼	4.4	subtract("Epoxy","airgap")

Scheme editor

```
subtract("Epoxy","airgap")
```

1. Name the object#0 as "Epoxy" and check it to create it in TracePro.
2. Select the geometry type as "Biaxial" and its linked object should be selected as "object 1" since object 0 is the primary and object 1 is the secondary profile.
3. We don't want to really create object 1 in TracePro, so please remember to uncheck Object 1.
4. Rename Object 2 as "mask" which is to cut the unwanted portion of Epoxy, then we need an after scheme macro to perform the cut-off.
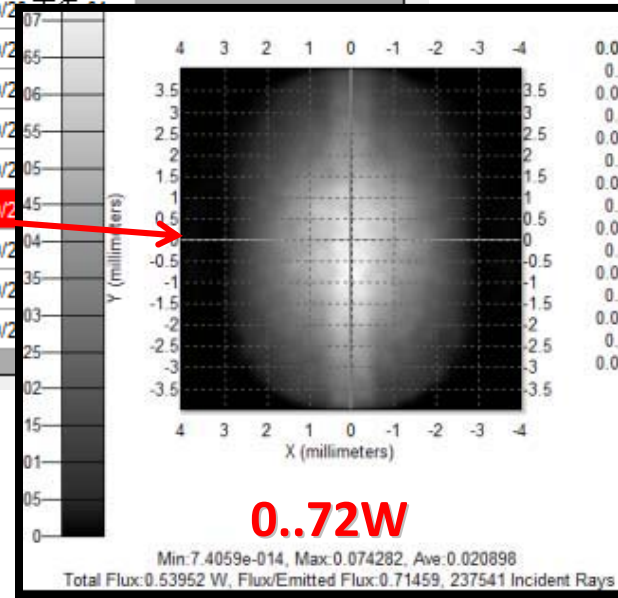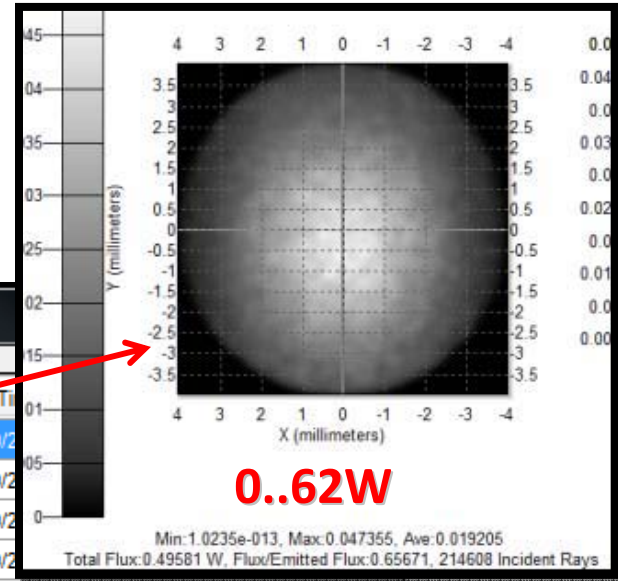5. Rename Object 4 as "airgap", to make a hole in the bottom of the epoxy.

Lambda Research Corporation

Biaxial lens optimization

Biaxial lens optimization

Example 4 demonstrates how to use the Interactive Optimizer for a non-radial symmetric lens. However the resultant lens created by bi-axial method is not a biconic lens which is popular in street light design and laser reshaping. The biconic lens can be accomplished in the optimizer.