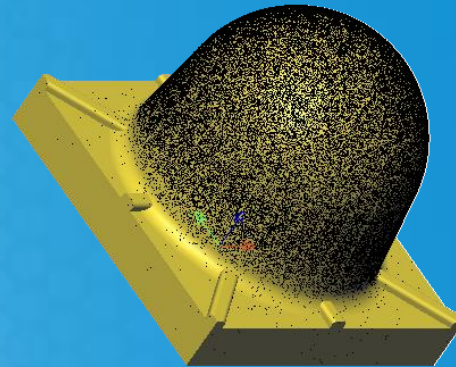


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Optical Rayset Readme

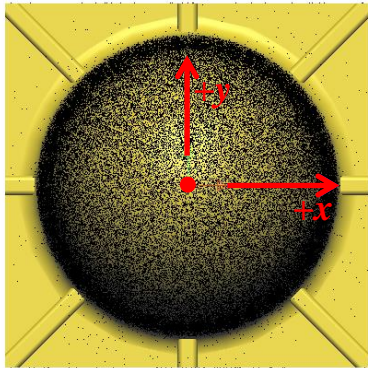
June 2nd, 2021



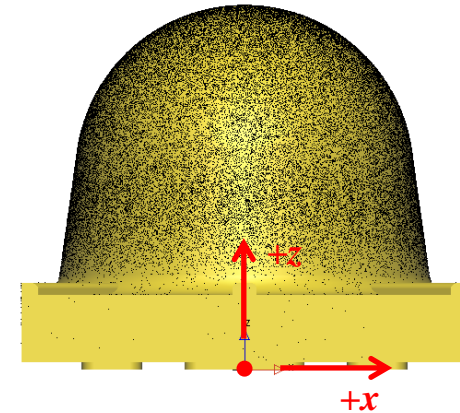
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Coordinate system

Top view



Side view

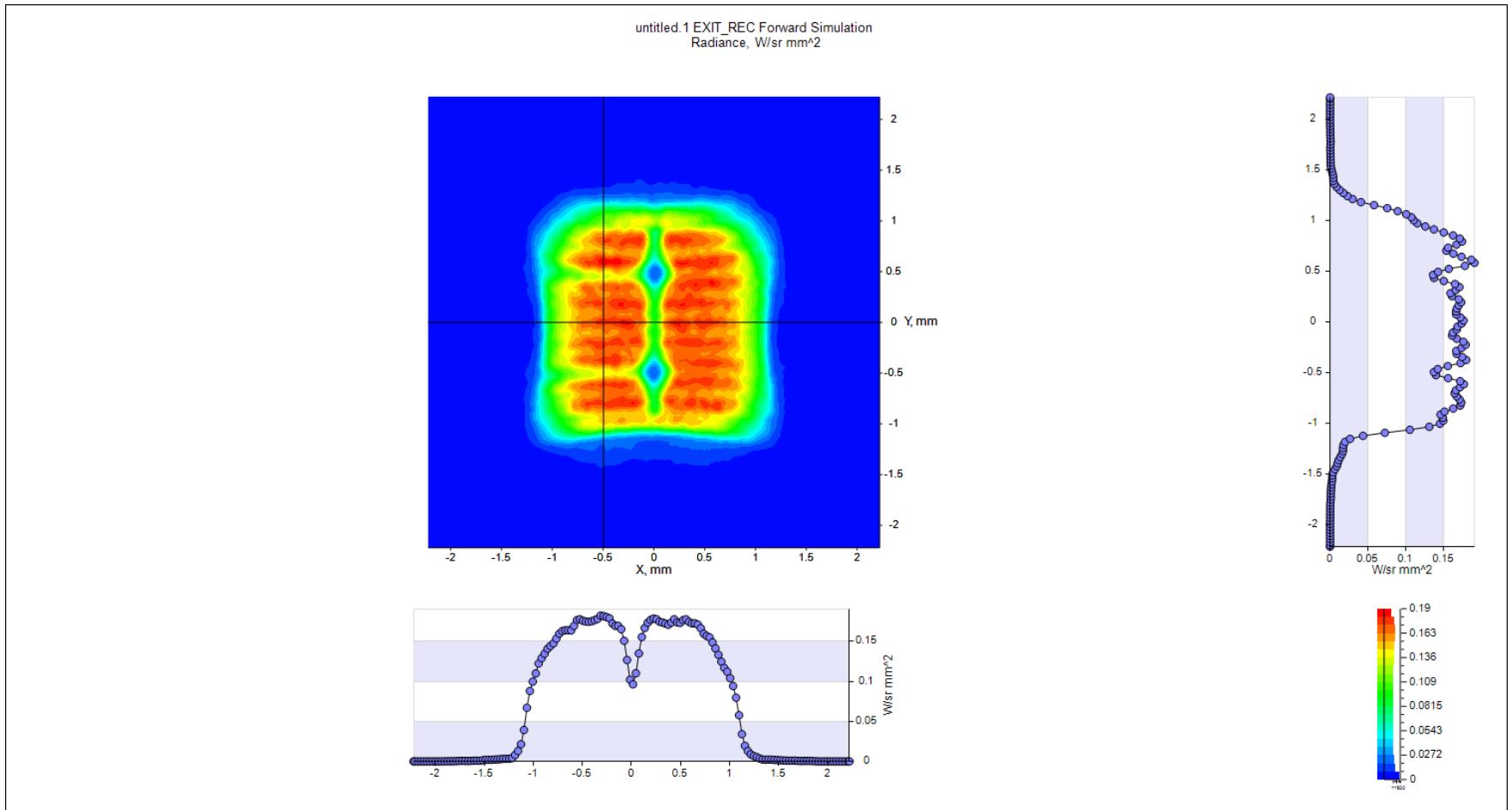


**CAD file and rayset files share the same coordinate system,
the origin is marked by the red dot in the sketches above:**

xy center == center of light emitting area
z=0 plane == bottom of package

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Radiance distribution at $z = -0.5$ mm



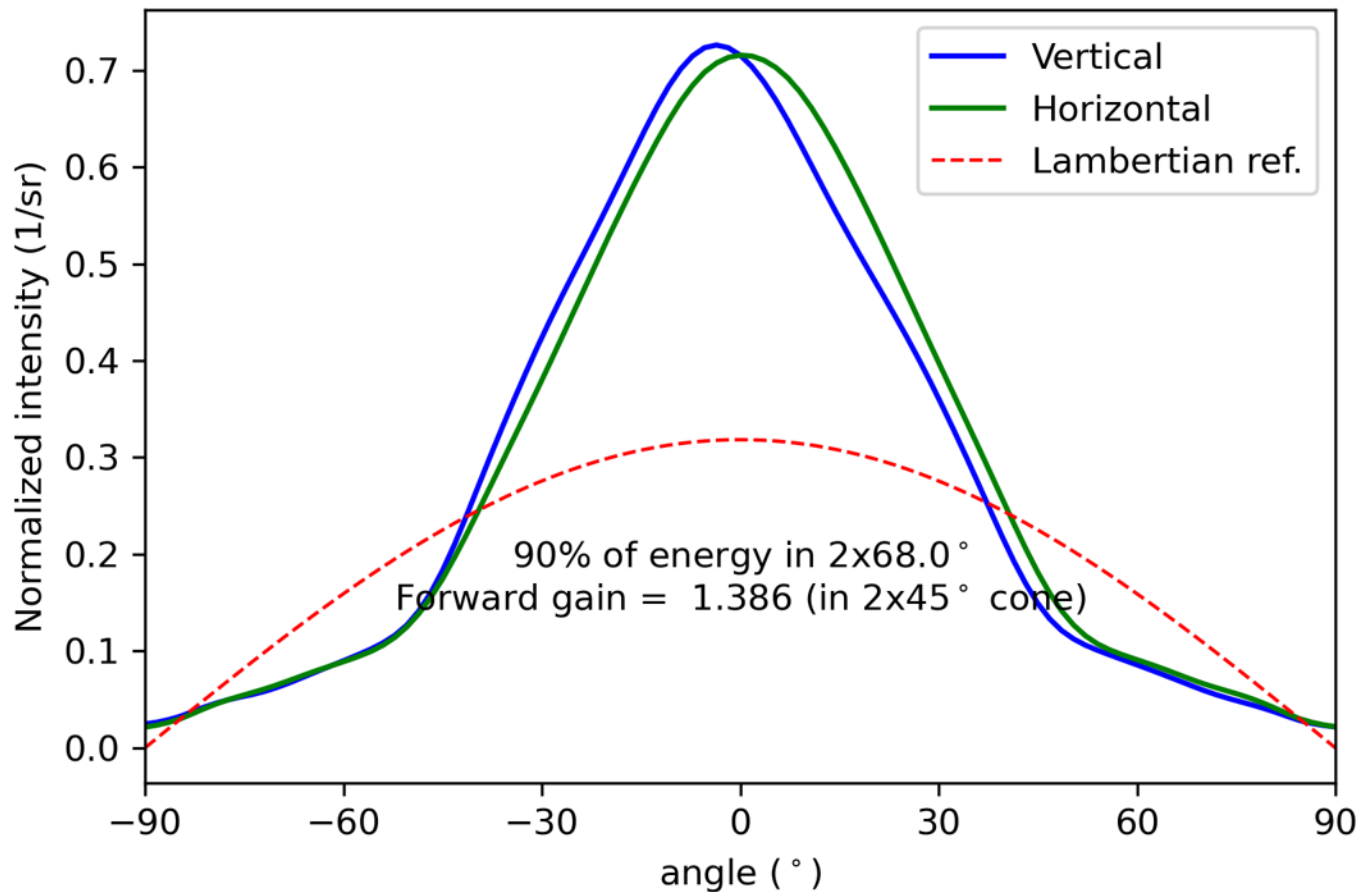
Size of distribution (FWHM) = 2.19×2.15 mm²

The two orthogonal lines in the image mark the reference planes of the two cross sections.

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Radiant intensity distribution

Normalized intensity for vertical and horizontal slices
with lambertian cosine as reference



Download File Nomenclature (see next slide)

Example

LUXEON_Altilon_SMD2_1x4_gen4plus_20190206_20Mray_proj_Z_spectral_LT.ray

Product Name

Reference Date

helps identifying underlying dataset

Number of rays

e.g. 20 M = $20 \cdot 10^6$ rays

Ray starting points

'proj' indicates that ray starting points have been **projected** onto the CAD surface (---).

Spectral range

$\begin{Bmatrix} Y \\ Z \\ - \end{Bmatrix} = \begin{Bmatrix} \text{only yellow} \\ \text{only blue} \\ \text{full} \end{Bmatrix}$ spectrum taken into account

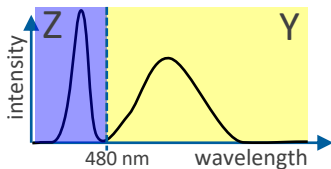
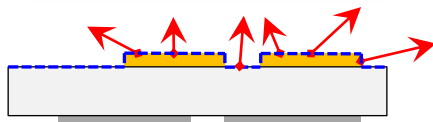
Spectral Information

$\begin{Bmatrix} \text{spectral} \\ - \end{Bmatrix} = \text{individual rays } \begin{Bmatrix} \text{do} \\ \text{don't} \end{Bmatrix} \text{ carry wavelength information}$

Target Software Package

LightTools (LT), ASAP, Zemax, ...

File Extension



Additional Application Notes

Randomization

In some cases, reducing the number of rays in a rayset might be desirable. In order to facilitate the generation of reduced raysets, **all raysets mentioned in this readme file are randomized**. Hence, a rayset having 5 million rays (5M) can simply be generated by taking the first 5M rays from 20M rayset.

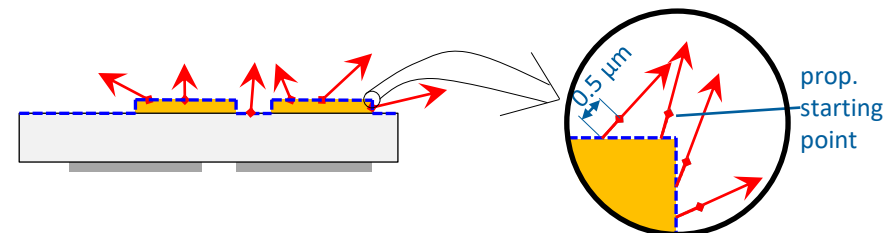
Projected Raysets: Propagated ray starting points

For projected raysets, the following procedure is applied for obtaining the starting points:

- (1) Project rays on CAD surface (----) → ray starting points
- (2) Propagate rays by 0.5 μm → propagated starting points (•)

All raysets mentioned in this readme file provide propagated starting points.

If raytracing includes the LED CAD, unpropagated rays are prone to be blocked at the surface. Rays with propagated starting points should not suffer from this problem.



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Link to download folder

<https://raysets.lumileds.com/index.php/s/jL6bAaNBRgKKtJk>

Files available for download

Prosource

LUXEON_IR_Domed_Gen2_940nm_60D_20210602_1448.rs8	246 MB
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LightTools

Projected rayset:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays_proj_LT.ray	533 MB	20MRays
Spectral projected rayset:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays_proj_spectral_LT.ray	609 MB	20MRays

ASAP/LucidShape

Projected rayset:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays_proj_ASAP.dis	533 MB	20MRays
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OPTIS SPEOS

Spectral projected rayset:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays_proj_spectral_Speos.ray	609 MB	20MRays
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Zemax

Projected rayset:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays_proj_zemax.dat	533 MB	20MRays
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Far Field

ies:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_20MRays.ies	10.1 kB
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Spectrum

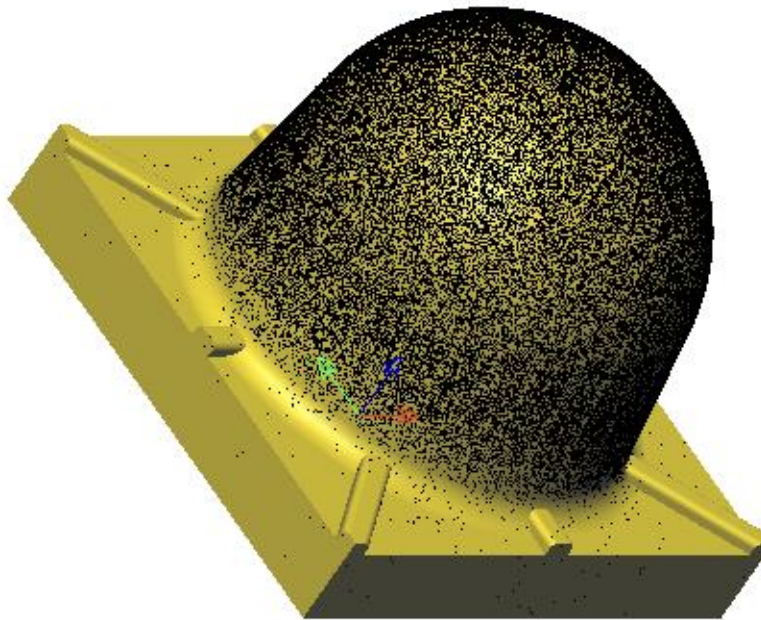
LUXEON_IR_Domed_Gen2_940nm_60D_20210602_spectrum.txt	13.1 kB
--	---------

CAD

STEP:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_geometry.STEP	889 kB
IGES:	LUXEON_IR_Domed_Gen2_940nm_60D_20210602_geometry.IGS	737 kB

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3D CAD view + ray starting points



Lumileds ref.: 1448_LUXEON IR Domed Gen 2 940nm 60D_20210602



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