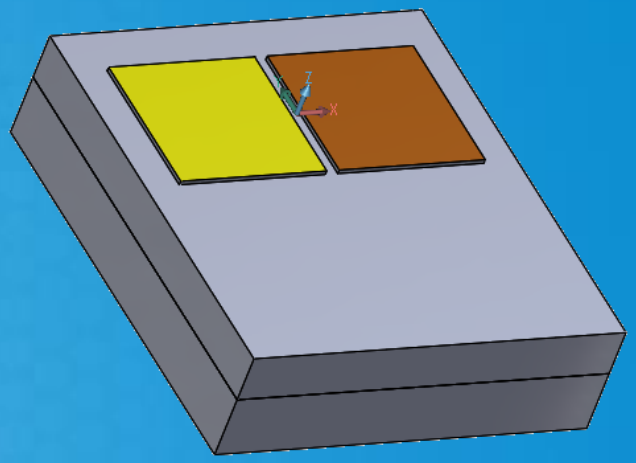
LUXEON Altilon SMD DT Gen6

Optical Rayset Readme

January 4th, 2021



LUMILEDS

Notes specific to the LUXEON Altilon SMD DT raysets

- This readme file describes two raysets. The raysets for the white and the amber part are separately measured. For each part some key properties are shown in the slides below.
  - Page 3 – 14: white (amber off)
  - Page 15 – 26: amber (white off)
- Each rayset is projected onto its respective area on the CAD model. The shift of the rays' starting points is included in the ray data, i.e. the origin of the raysets needs to be set to the origin of the CAD (x,y,z = 0,0,0).

LUXEON Altilon SMD DT - Cool White

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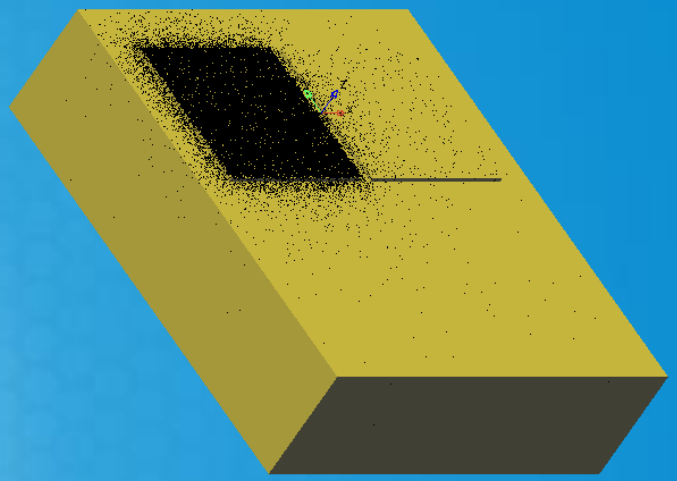
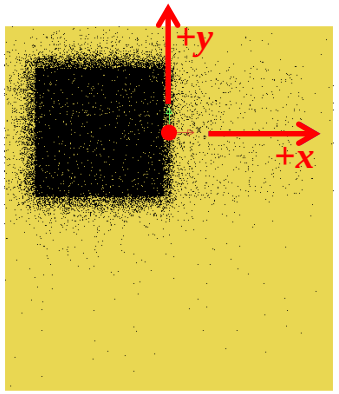


LUMILEDS

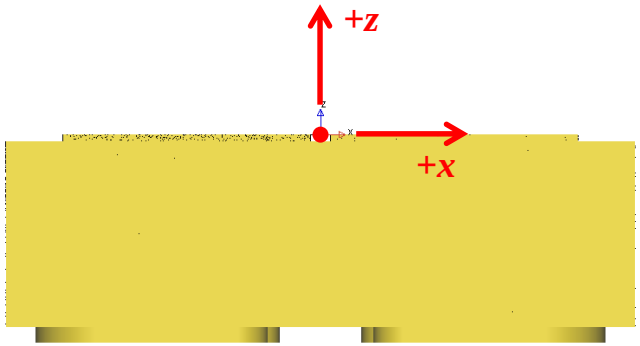
LUXEON Altilon SMD DT - Cool White

Coordinate system

Top view



Side view



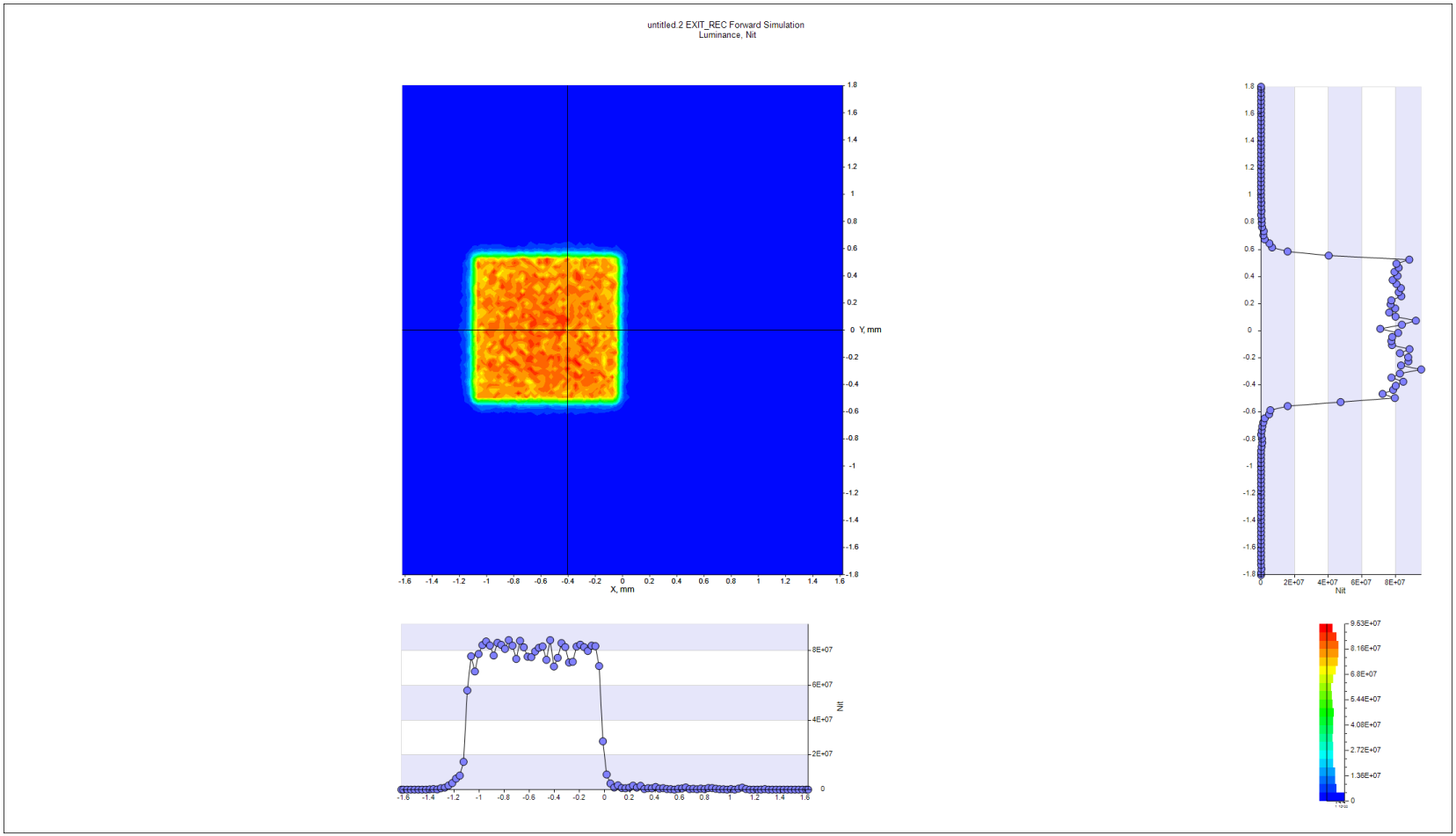
CAD file and rayset files share <u>the same</u> coordinate system, the origin is marked by the red dot in the sketches above:

xy center == center between both light emitting areas

z=0 plane == top edge of light emitting areas

LUXEON Altilon SMD DT - Cool White

Luminance distribution at z = 0 mm

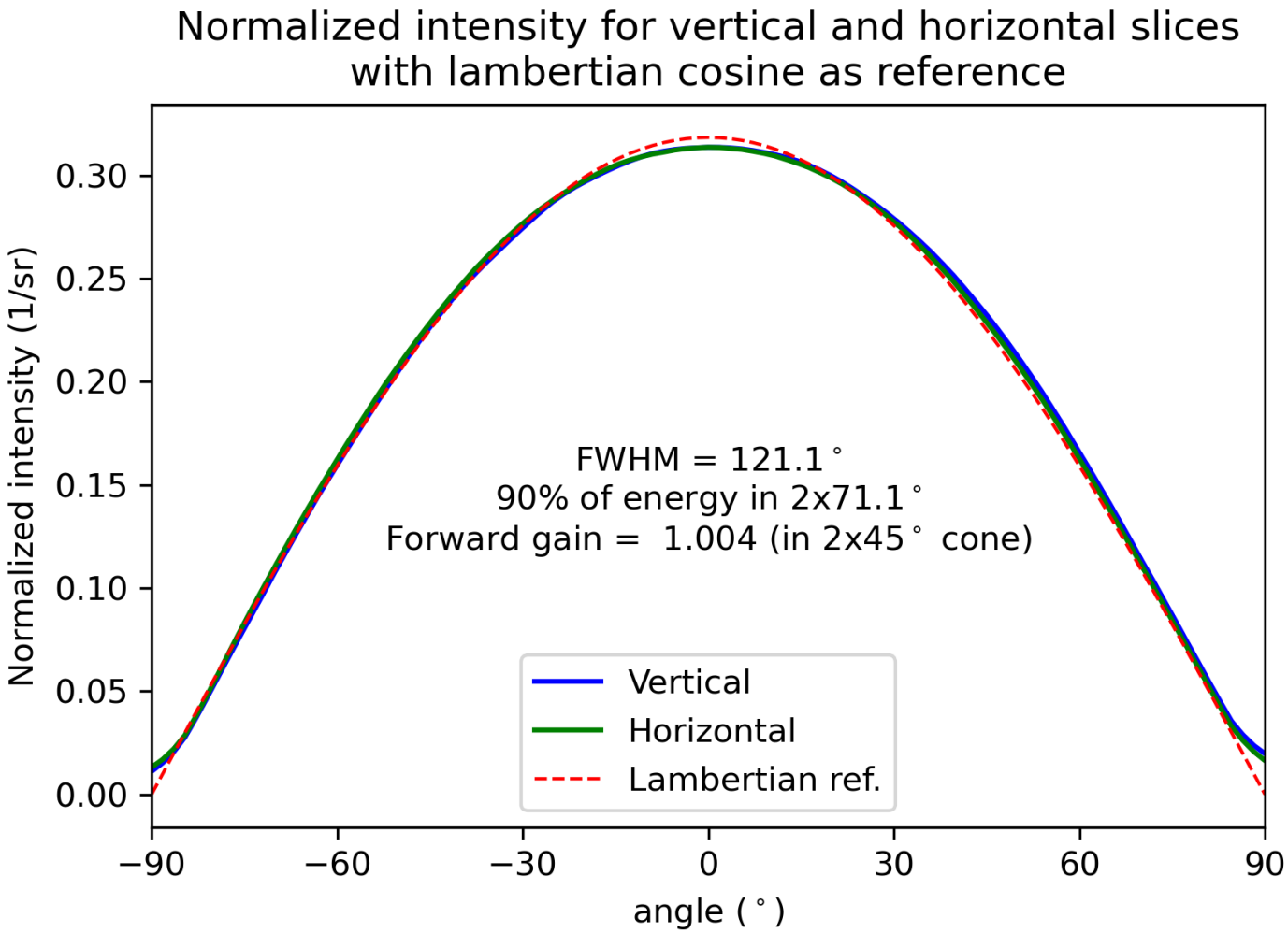


Size of distribution (FWHM) = 1.19 x 1.08 mm²

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

LUXEON Altilon SMD DT - Cool White

Luminous intensity distribution



Download File Nomenclature (see next slide)

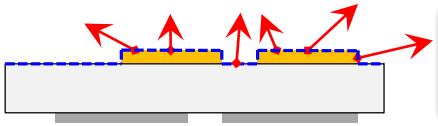
Example

LUXEON_Altilon_SMD2_1x4_gen4plus_20190206_20Mray_proj_Z_spectral_LT.ray

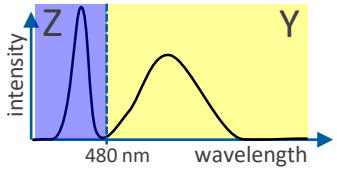
Product Name

Reference Date
helps identifying underlying dataset

Number of rays
e.g. 20 M = 20 · 10^6 rays



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



Spectral range

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

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

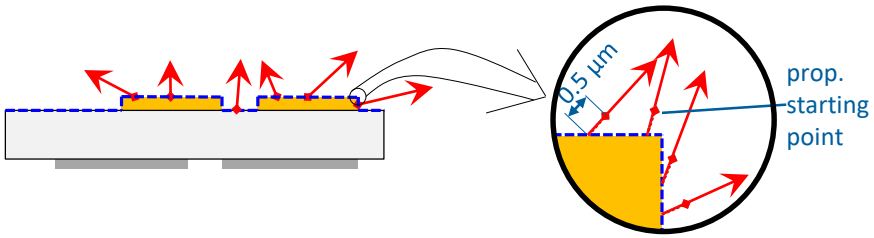
For projected raysets, the following procedure is applied for obtaining the starting points:

(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.



LUXEON Altilon SMD DT - Cool White

Link to download folder

https://raysets.lumileds.com/index.php/s/jdQtLsSDR8aLq9y

Files available for download

Prosource

RS8	LUXEON_Altilon_SMD_DT_CW_20210104_1369.rs8	1.37 GB	

LightTools

Spectral Projected	LUXEON_Altilon_SMD_DT_CW_20210104_40MRays_proj_spectral_LT.ray	1.18 GB	40MRays
Y-Component Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Y_LT.ray	530 MB	20MRays
Z-Component Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Z_LT.ray	530 MB	20MRays

ASAP & LucidShape

Y-Component Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Y_ASAP.dis	530 MB	20MRays
Z-Component Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Z_ASAP.dis	530 MB	20MRays

OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Y_spectral_Speos.ray	606 MB	20MRays
Z-Component Spectral Projected	LUXEON_Altilon_SMD_DT_CW_20210104_20MRays_proj_Z_spectral_Speos.ray	605 MB	20MRays

Zemax

Spectral Projected	LUXEON_Altilon_SMD_DT_CW_20210104_40MRays_proj_spectral_zemax.dat	1.18 GB	40MRays

Far Field

IES	LUXEON_Altilon_SMD_DT_CW_20210104_40MRays.ies	10.6 kB	

Spectrum

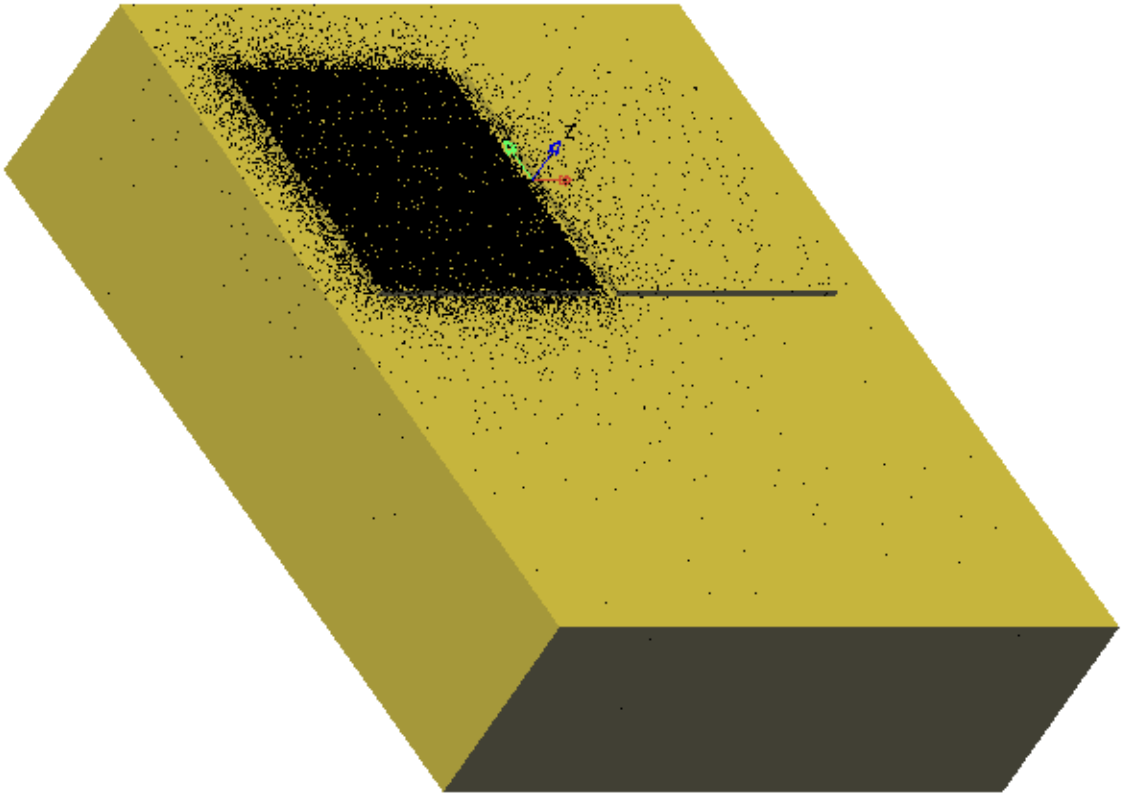
Spectrum	LUXEON_Altilon_SMD_DT_CW_20210104_spectrum.txt	17.4 kB	

CAD

STEP	LUXEON_Altilon_SMD_DT_20210104_geometry.STEP	173 kB	
IGES	LUXEON_Altilon_SMD_DT_20210104_geometry.IGS	153 kB	

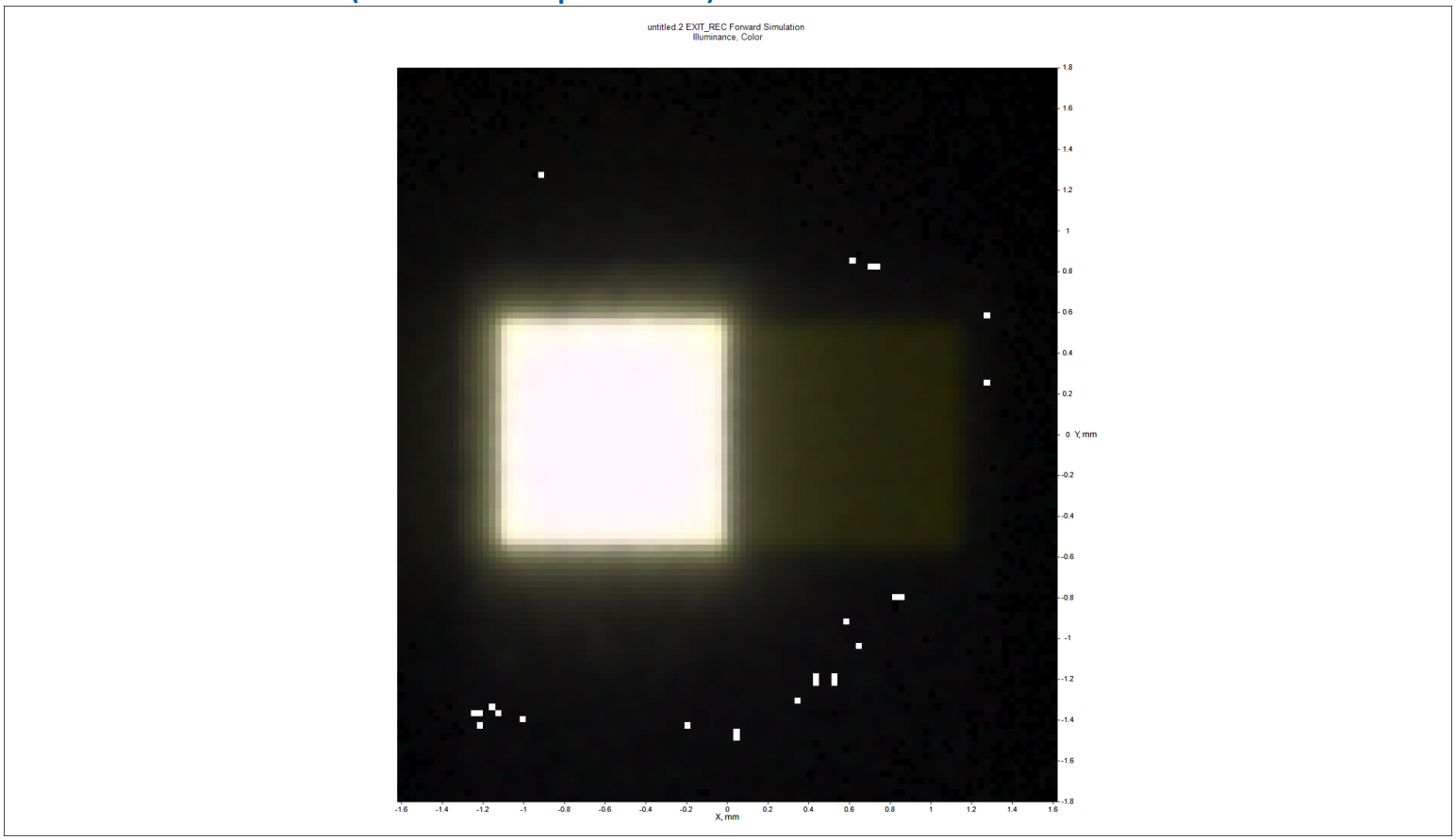
LUXEON Altilon SMD DT - Cool White

3D CAD view + ray starting points



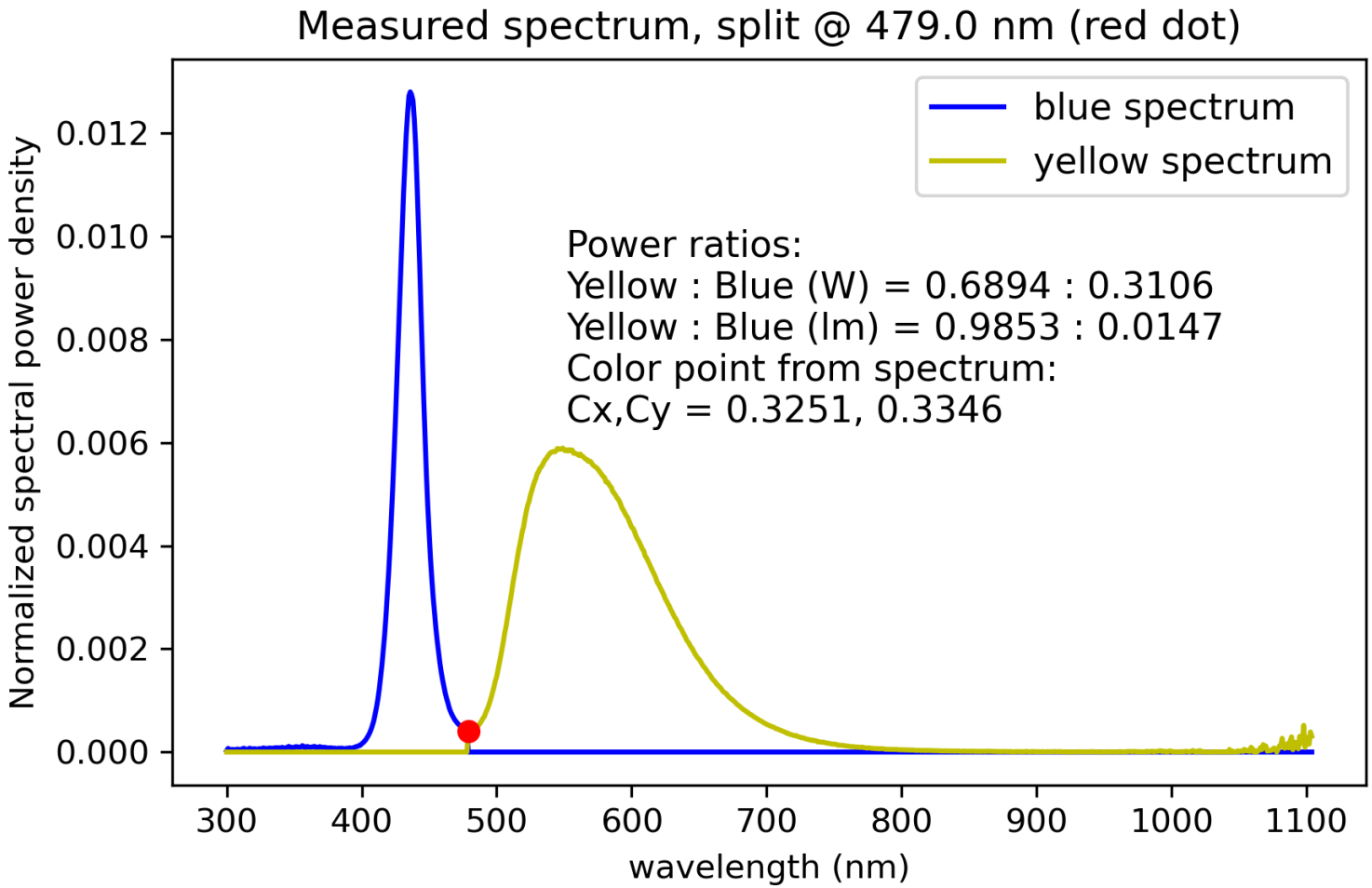
LUXEON Altilon SMD DT - Cool White

Illuminance color chart (color over position)



LUXEON Altilon SMD DT - Cool White

Measured spectrum split in blue (Z) and yellow (Y) components



LUXEON Altilon SMD DT - Cool White

Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	0.6894 : 0.3106
yellow : blue ratio (lm) (from measured spectrum)	0.9853 : 0.0147
Average color point Cx, Cy (from measured spectrum)	0.3251, 0.3346
Average color point Cx, Cy (from simulation)	0.3249, 0.3342
Color point Cx, Cy @ HV (from simulation)	0.3239, 0.3314
Average CCT (K) (from simulation)	5.853e+03

Lumileds ref.: SJ001369_LUXEON Altilon SMD DT - Cool White_20210104

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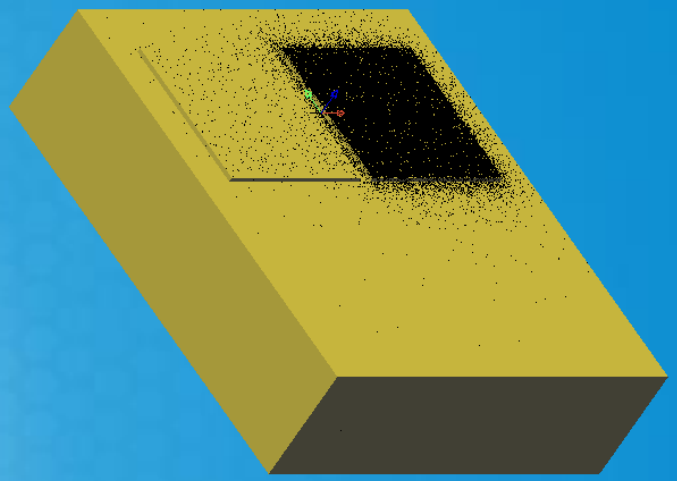
LUXEON Altilon SMD DT - PC Amber

Optical Rayset Readme

January 4th, 2021

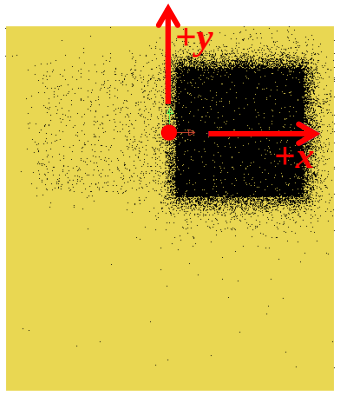


LUMILEDS

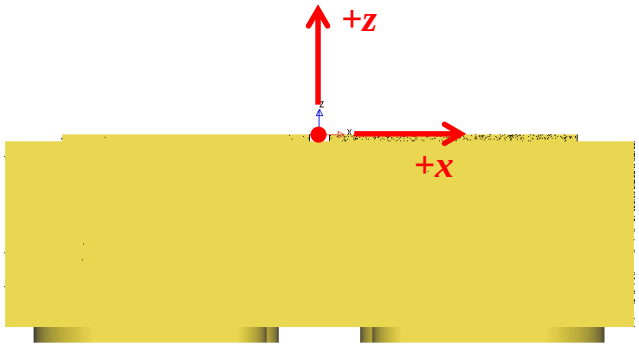
LUXEON Altilon SMD DT - PC Amber

Coordinate system

Top view



Side view



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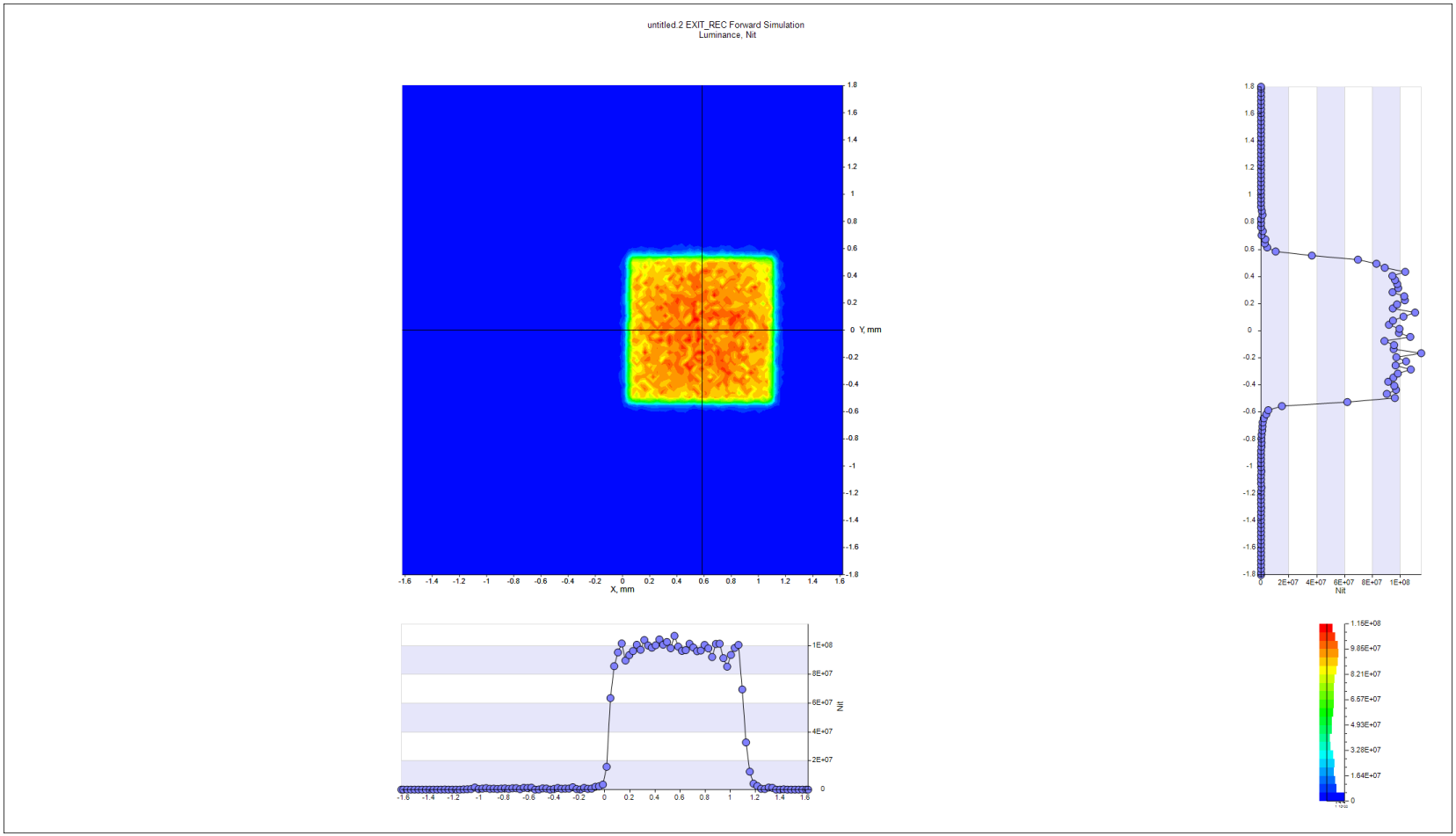
z=0 plane == top edge of light emitting areas

LUXEON Altilon SMD DT - PC Amber

Luminance distribution at z = 0 mm

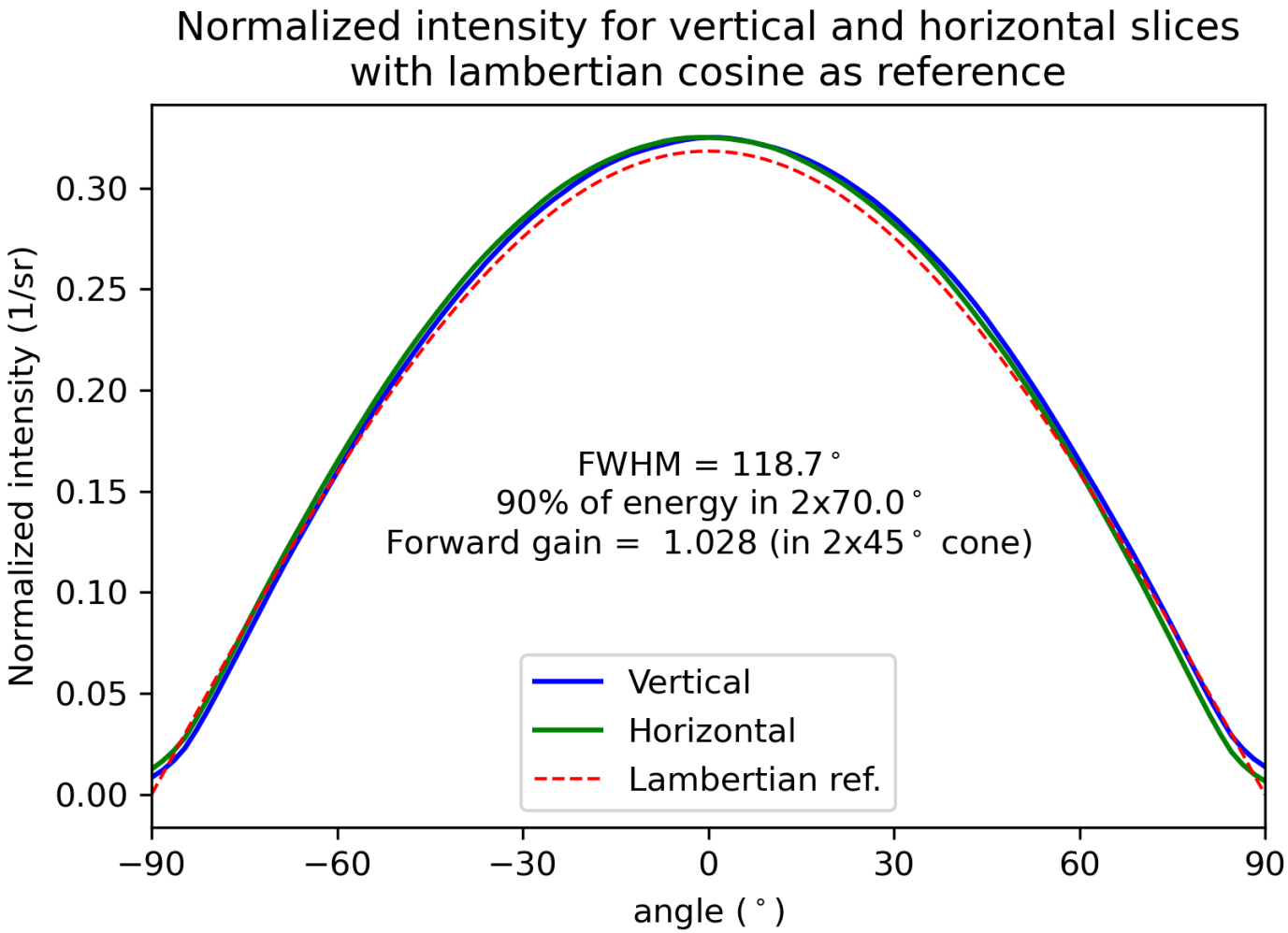


Size of distribution (FWHM) = 1.22 x 1.06 mm²

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

LUXEON Altilon SMD DT - PC Amber

Luminous intensity distribution



Download File Nomenclature (see next slide)

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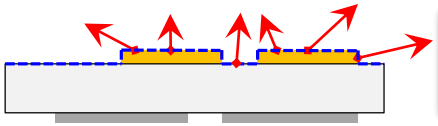
Reference Date
helps identifying underlying dataset

Number of rays
e.g. 20 M = 20 · 10^6 rays



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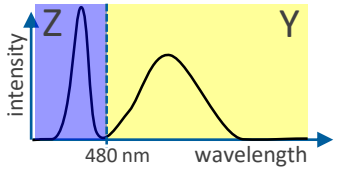

Spectral range

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Spectral Information

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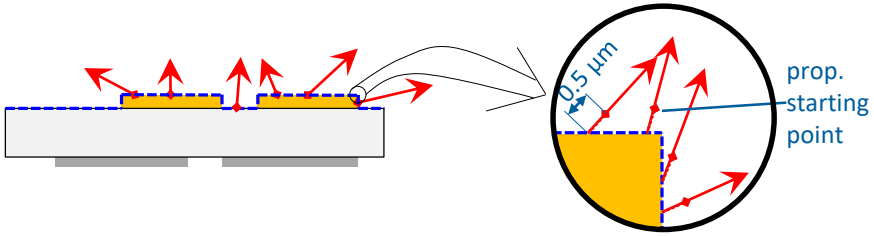


LUXEON Altilon SMD DT - PC Amber

Link to download folder

https://raysets.lumileds.com/index.php/s/5b7fxnq4CpTieTa

Files available for download

Prosource

RS8	LUXEON_Altilon_SMD_DT_PCA_20210104_1370.rs8	1020 MB	

LightTools

Spectral Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_40MRays_proj_spectral_LT.ray	1.18 GB	40MRays
Y-Component Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Y_LT.ray	531 MB	20MRays
Z-Component Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Z_LT.ray	530 MB	20MRays

ASAP & LucidShape

Y-Component Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Y_ASAP.dis	531 MB	20MRays
Z-Component Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Z_ASAP.dis	530 MB	20MRays

OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Y_spectral_Speos.ray	607 MB	20MRays
Z-Component Spectral Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_20MRays_proj_Z_spectral_Speos.ray	606 MB	20MRays

Zemax

Spectral Projected	LUXEON_Altilon_SMD_DT_PCA_20210104_40MRays_proj_spectral_zemax.dat	1.18 GB	40MRays

Far Field

IES	LUXEON_Altilon_SMD_DT_PCA_20210104_40MRays.ies	10.7 kB	

Spectrum

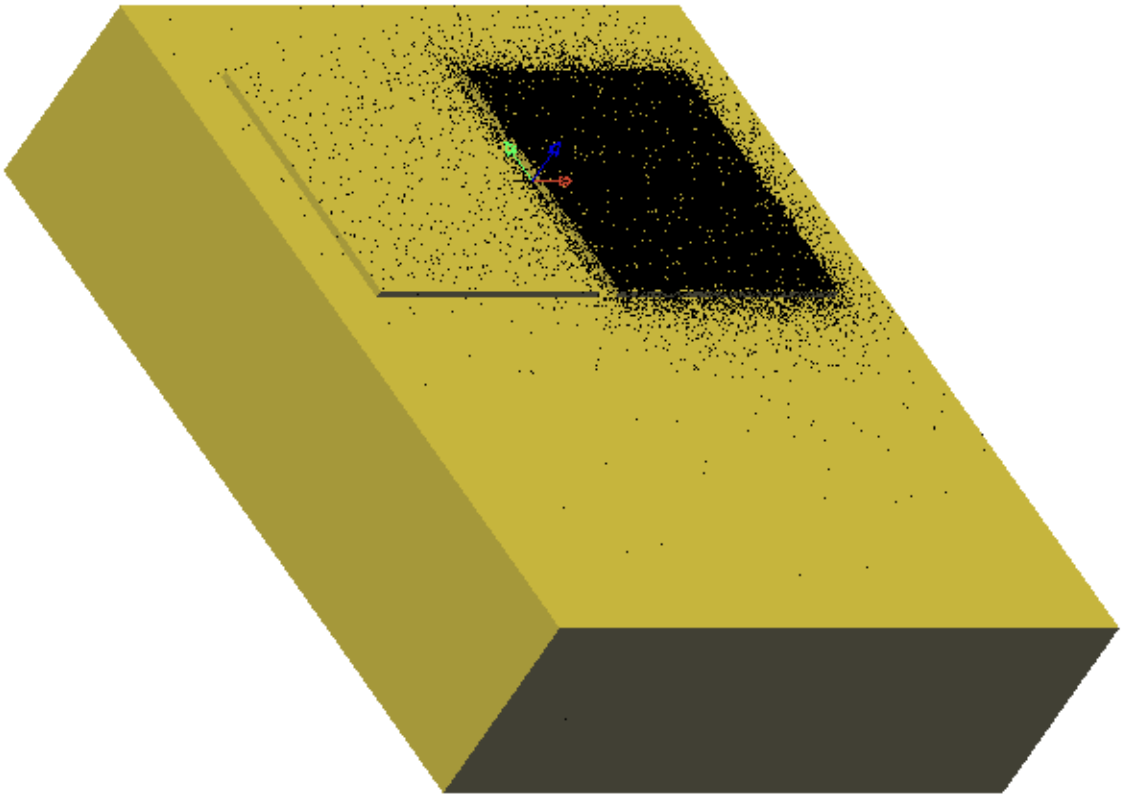
Spectrum	LUXEON_Altilon_SMD_DT_PCA_20210104_spectrum.txt	17.4 kB	

CAD

STEP	LUXEON_Altilon_SMD_DT_20210104_geometry.STEP	173 kB	
IGES	LUXEON_Altilon_SMD_DT_20210104_geometry.IGS	153 kB	

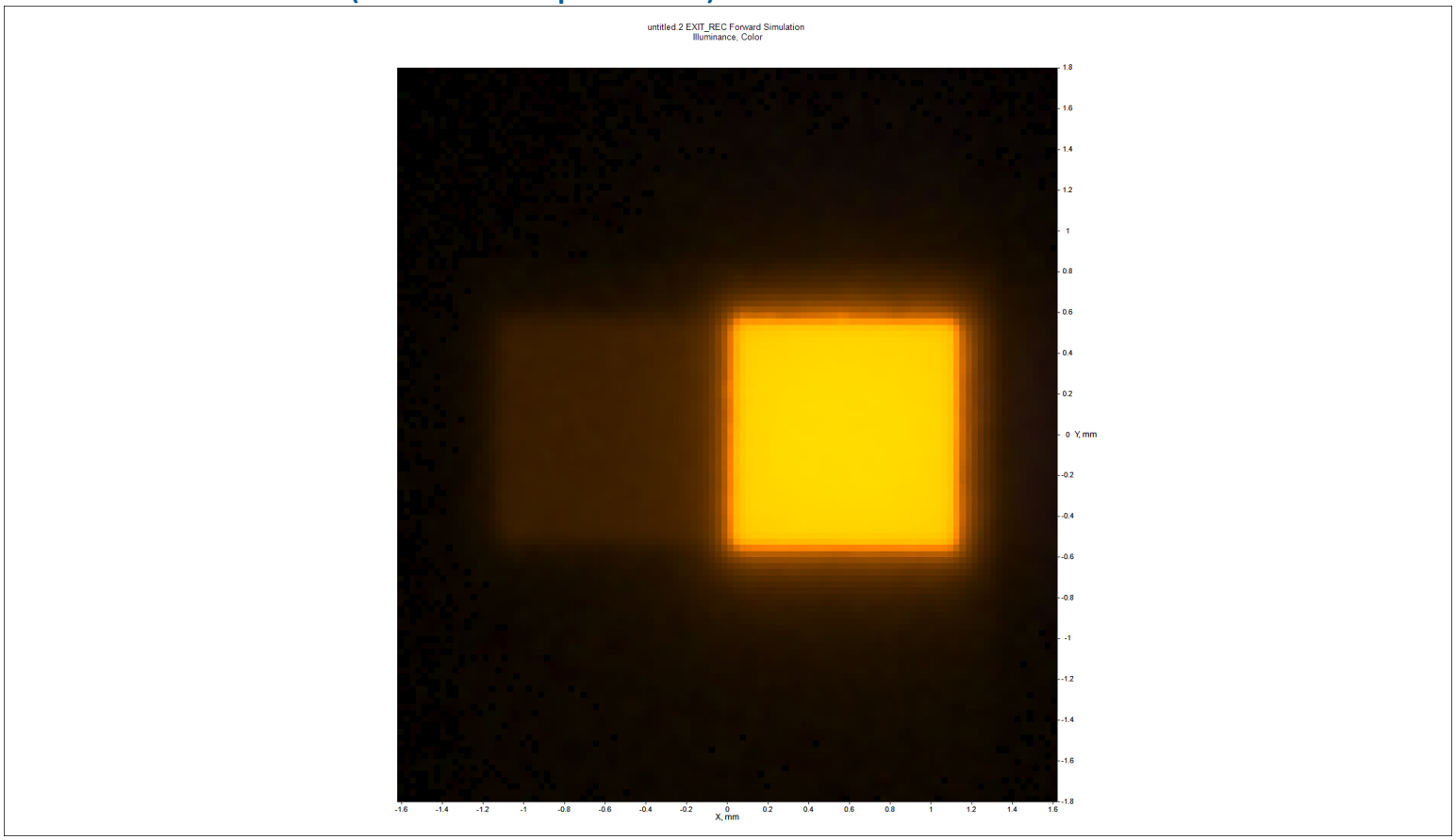
LUXEON Altilon SMD DT - PC Amber

3D CAD view + ray starting points



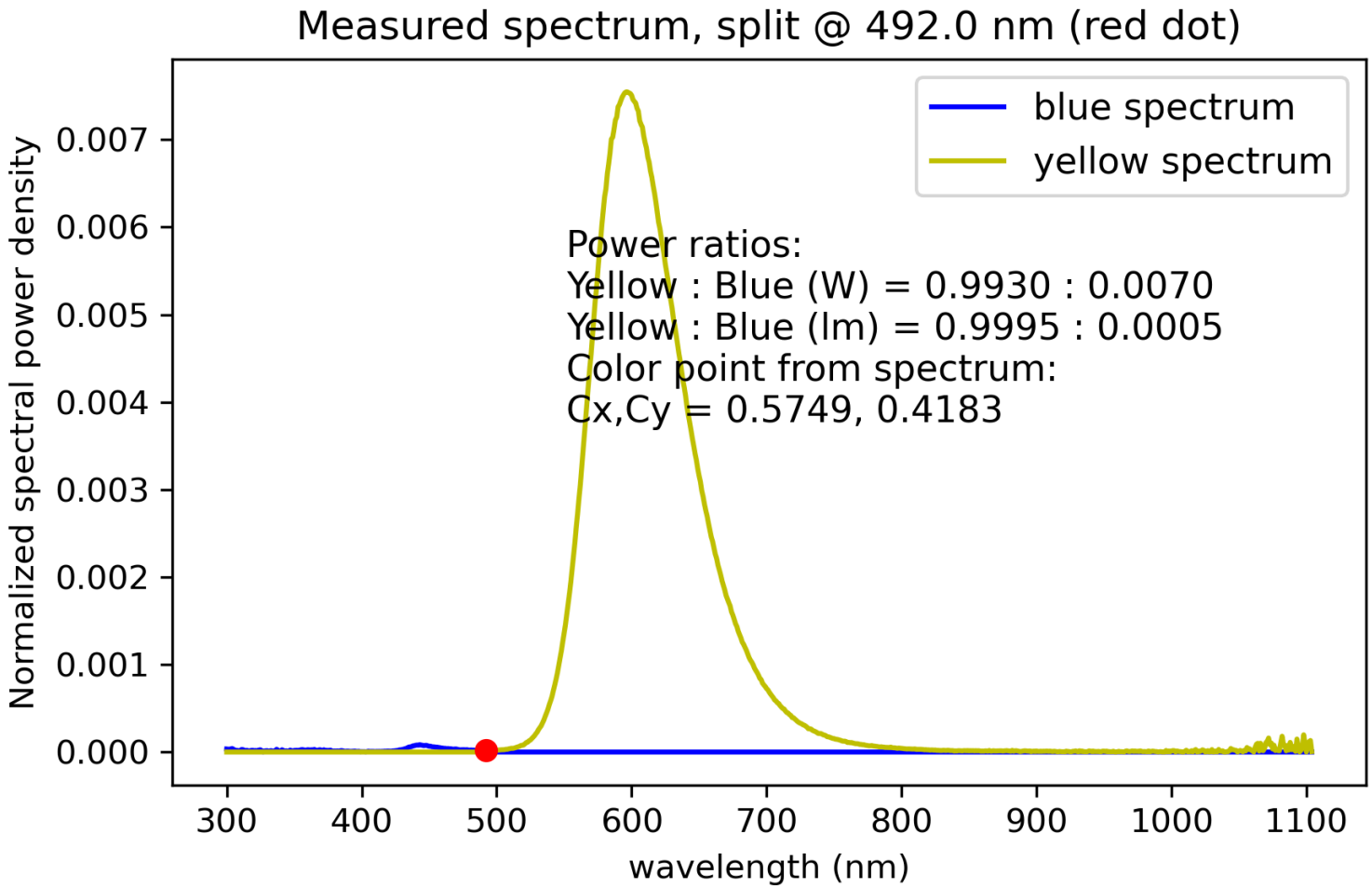
LUXEON Altilon SMD DT - PC Amber

Illuminance color chart (color over position)



LUXEON Altilon SMD DT - PC Amber

Measured spectrum split in blue (Z) and yellow (Y) components



LUXEON Altilon SMD DT - PC Amber

Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	0.9930 : 0.0070
yellow : blue ratio (lm) (from measured spectrum)	0.9995 : 0.0005
Average color point Cx, Cy (from measured spectrum)	0.5749, 0.4183
Average color point Cx, Cy (from simulation)	0.5751, 0.4181
Color point Cx, Cy @ HV (from simulation)	0.5746, 0.4183
Average CCT (K) (from simulation)	1.686e+03

Lumileds ref.: SJ001370_LUXEON Altilon SMD DT - PC Amber_20210104

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