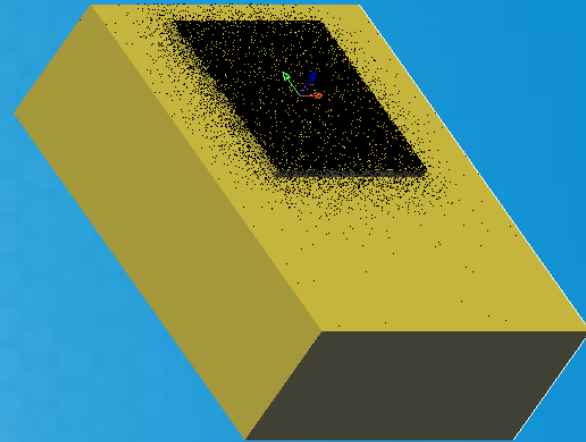


LUXEON FX Plus PC Amber (Gen6)

Optical Rayset Readme

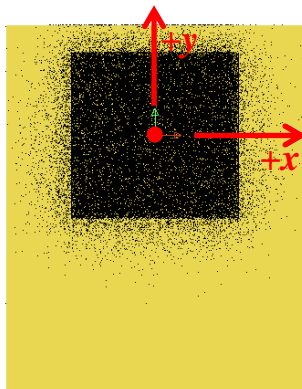
July 7th, 2021



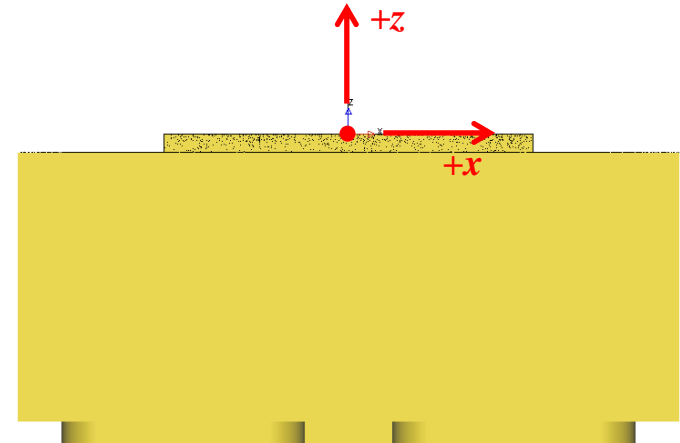
LUXEON FX Plus PC Amber (Gen6)

Coordinate system

Top view



Side view

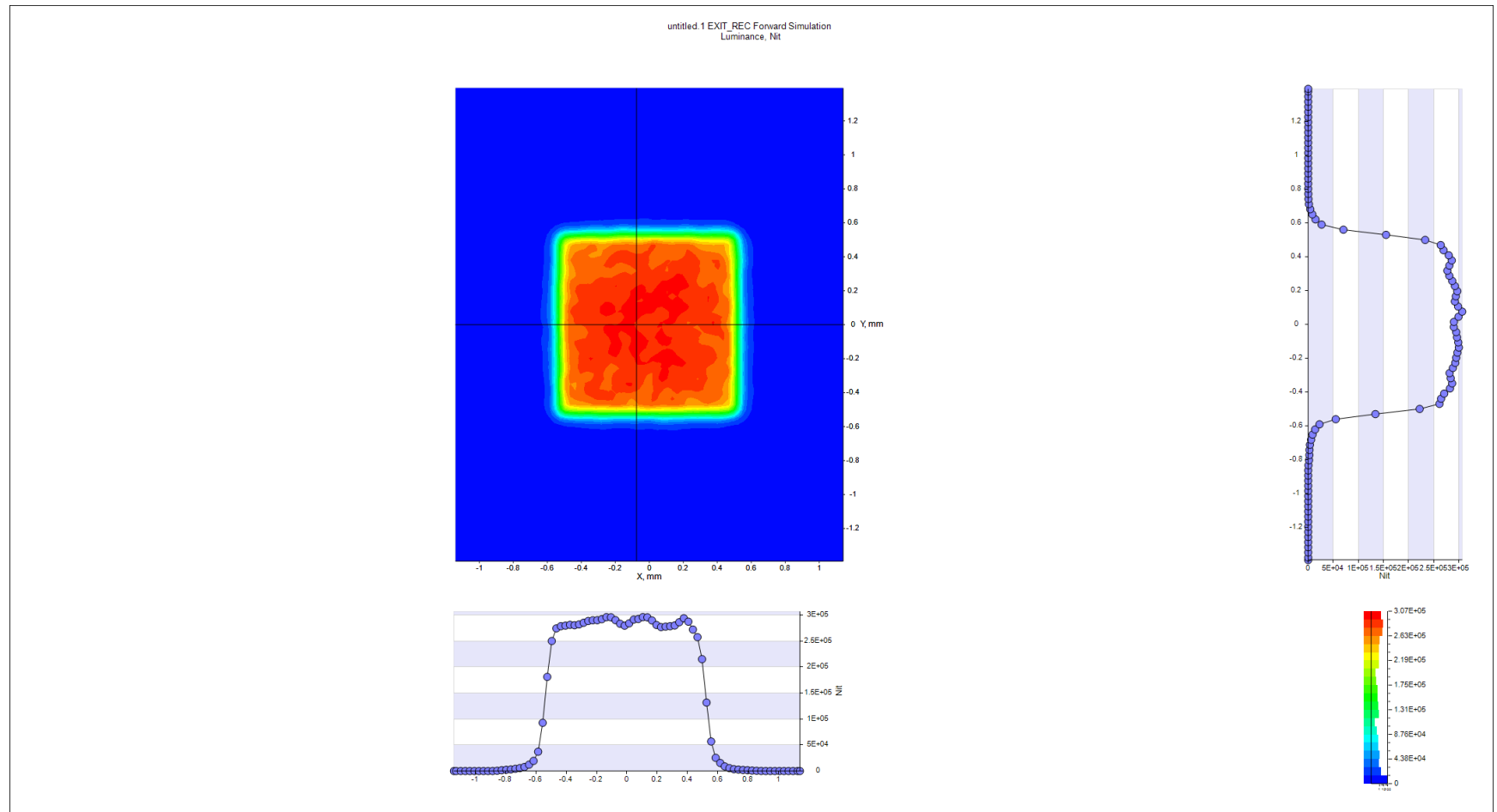


**CAD file and rayset files share the same coordinate system,
the origin is marked by the red dot in the sketches above:**

xy center == center of light emitting area
z=0 plane == top edge of light emitting area

LUXEON FX Plus PC Amber (Gen6)

Luminance distribution at $z = 0$ mm

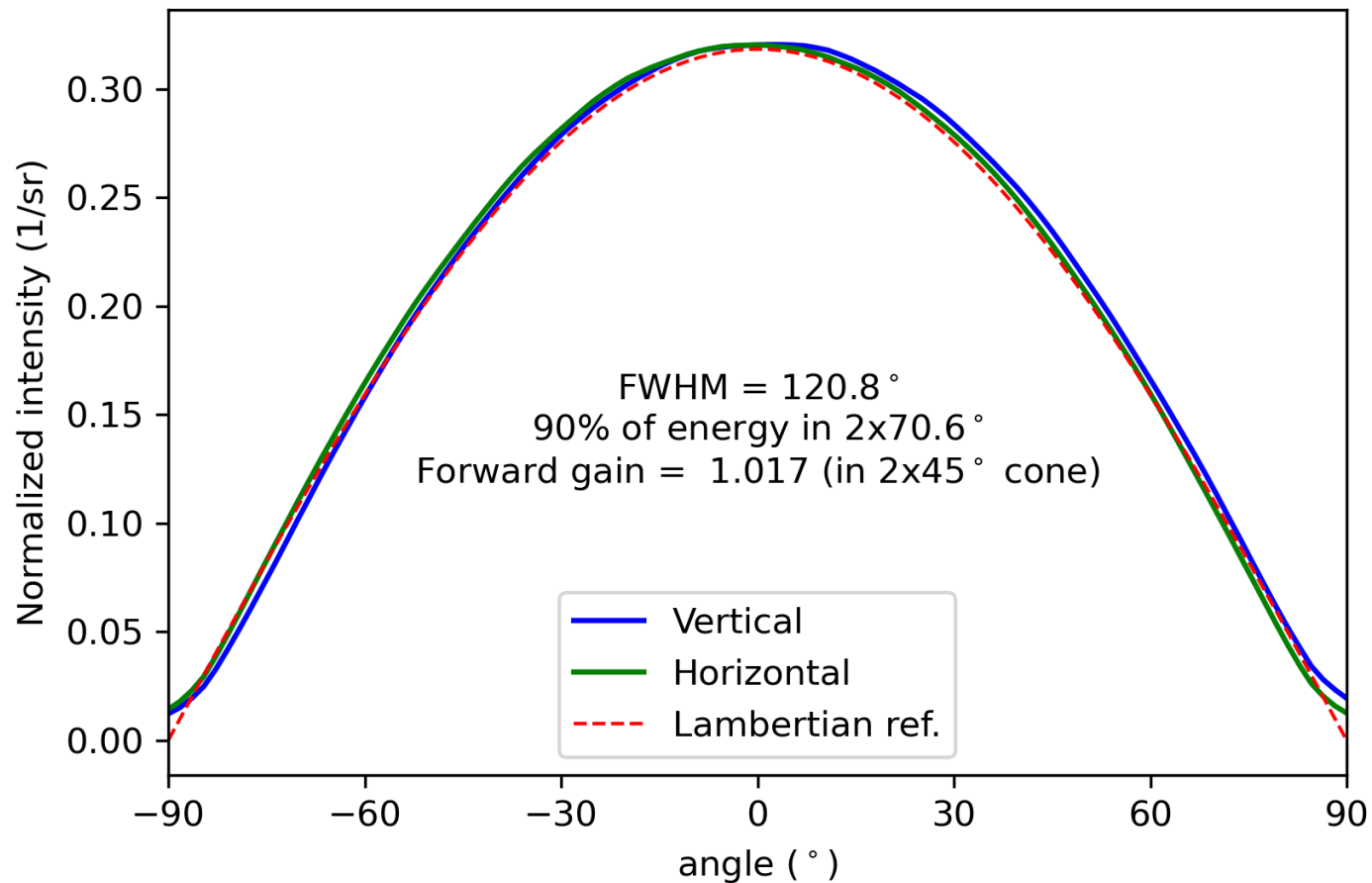


The two orthogonal lines in the image mark the reference planes of the two cross sections.

LUXEON FX Plus PC Amber (Gen6)

Luminous 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

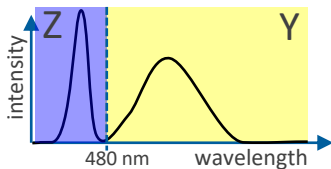
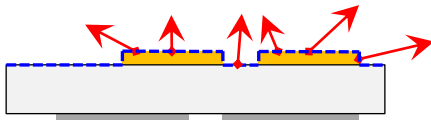
Spectral Information

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

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.

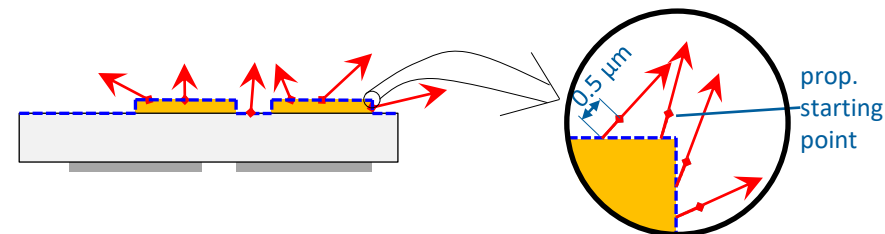
Projected Raysets: Propagated ray starting points

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 $0.5\ \mu\text{m}$ → 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 FX Plus PC Amber (Gen6)

Link to download folder

<https://raysets.lumileds.com/index.php/s/2xQ2axoDYkZdboP>

Files available for download

Prosource

RS8	LUXEON_FX_Plus_PCA_Gen6_20210707_1301.rs8	606 MB
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LightTools

Spectral Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_40MRays_proj_spectral_LT.ray	1.19 GB	40MRays
Y-Component Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Y_LT.ray	533 MB	20MRays
Z-Component Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Z_LT.ray	533 MB	20MRays

ASAP & LucidShape

Y-Component Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Y_ASAP.dis	533 MB	20MRays
Z-Component Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Z_ASAP.dis	533 MB	20MRays

OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Y_spectral_Speos.ray	609 MB	20MRays
Z-Component Spectral Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_20MRays_proj_Z_spectral_Speos.ray	609 MB	20MRays

Zemax

Spectral Projected	LUXEON_FX_Plus_PCA_Gen6_20210707_40MRays_proj_spectral_zemax.dat	1.19 GB	40MRays
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Far Field

IES	LUXEON_FX_Plus_PCA_Gen6_20210707_40MRays.ies	10.1 kB
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Spectrum

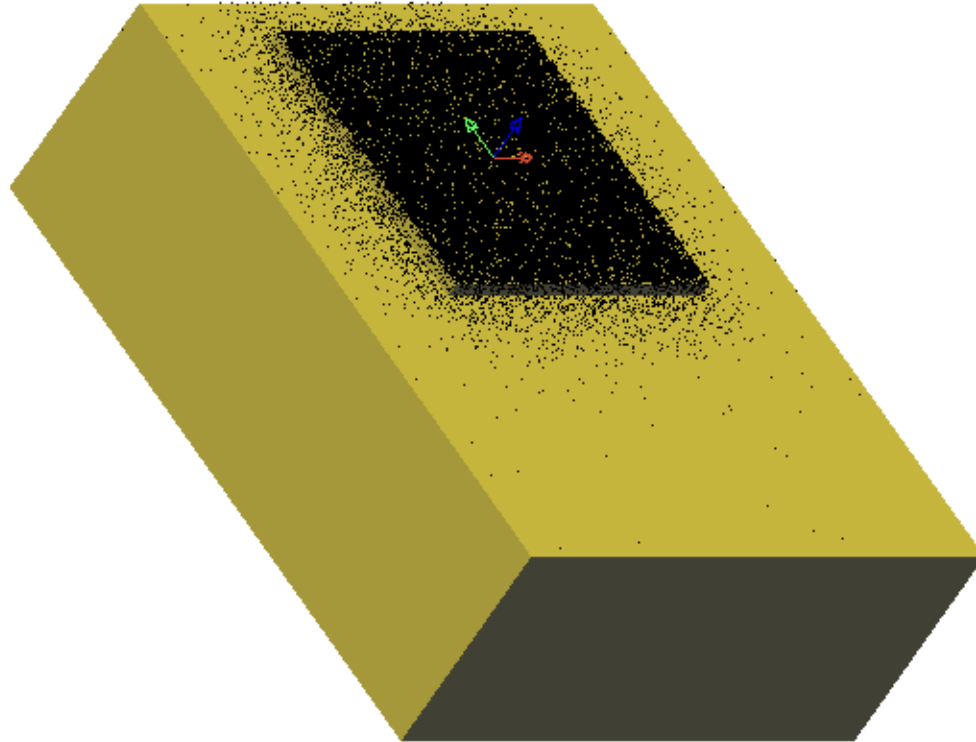
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CAD

STEP	LUXEON_FX_Plus_PCA_Gen6_20210707_geometry.STEP	121 kB
IGES	LUXEON_FX_Plus_PCA_Gen6_20210707_geometry.IGS	96.7 kB

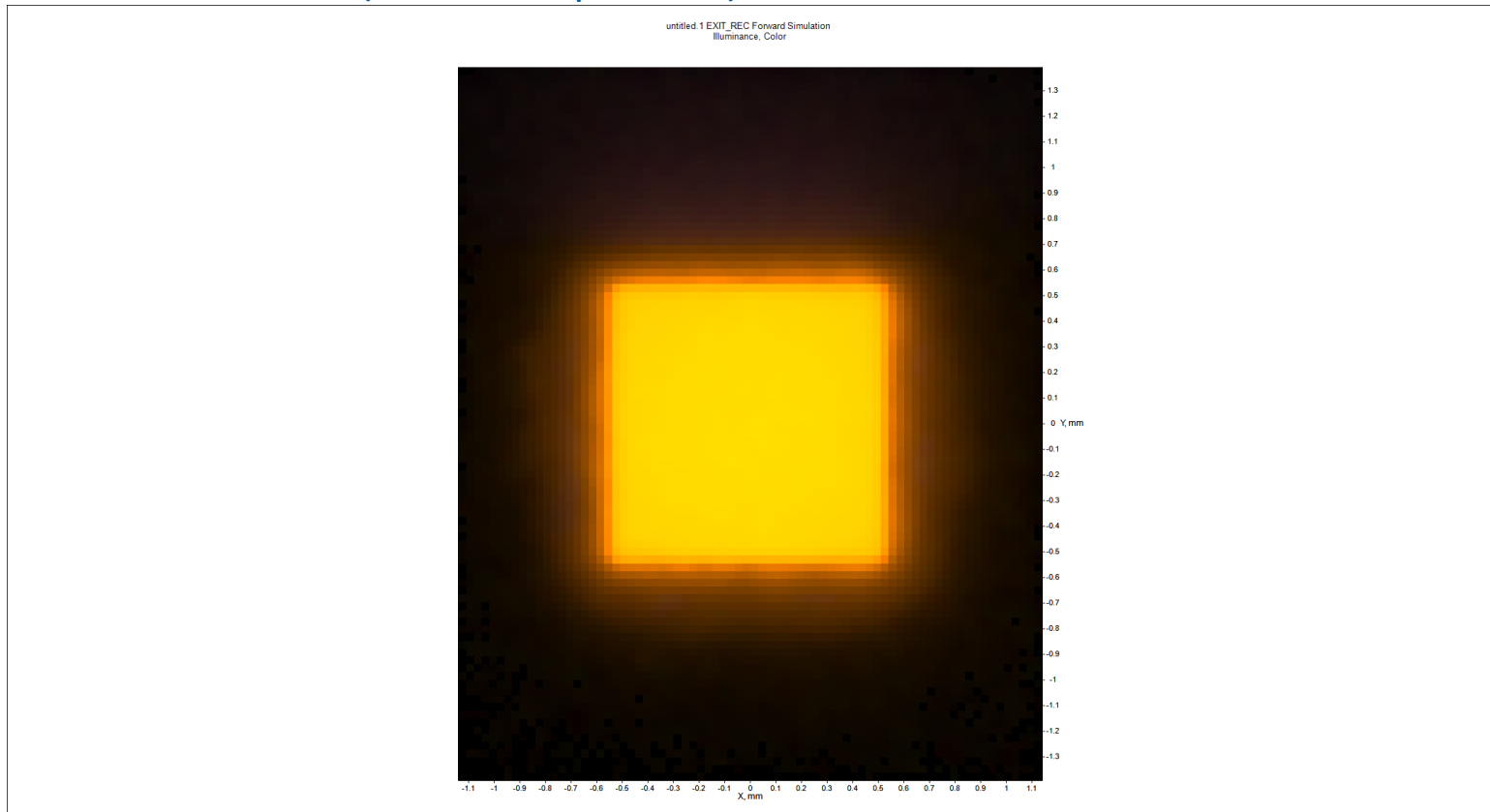
LUXEON FX Plus PC Amber (Gen6)

3D CAD view + ray starting points



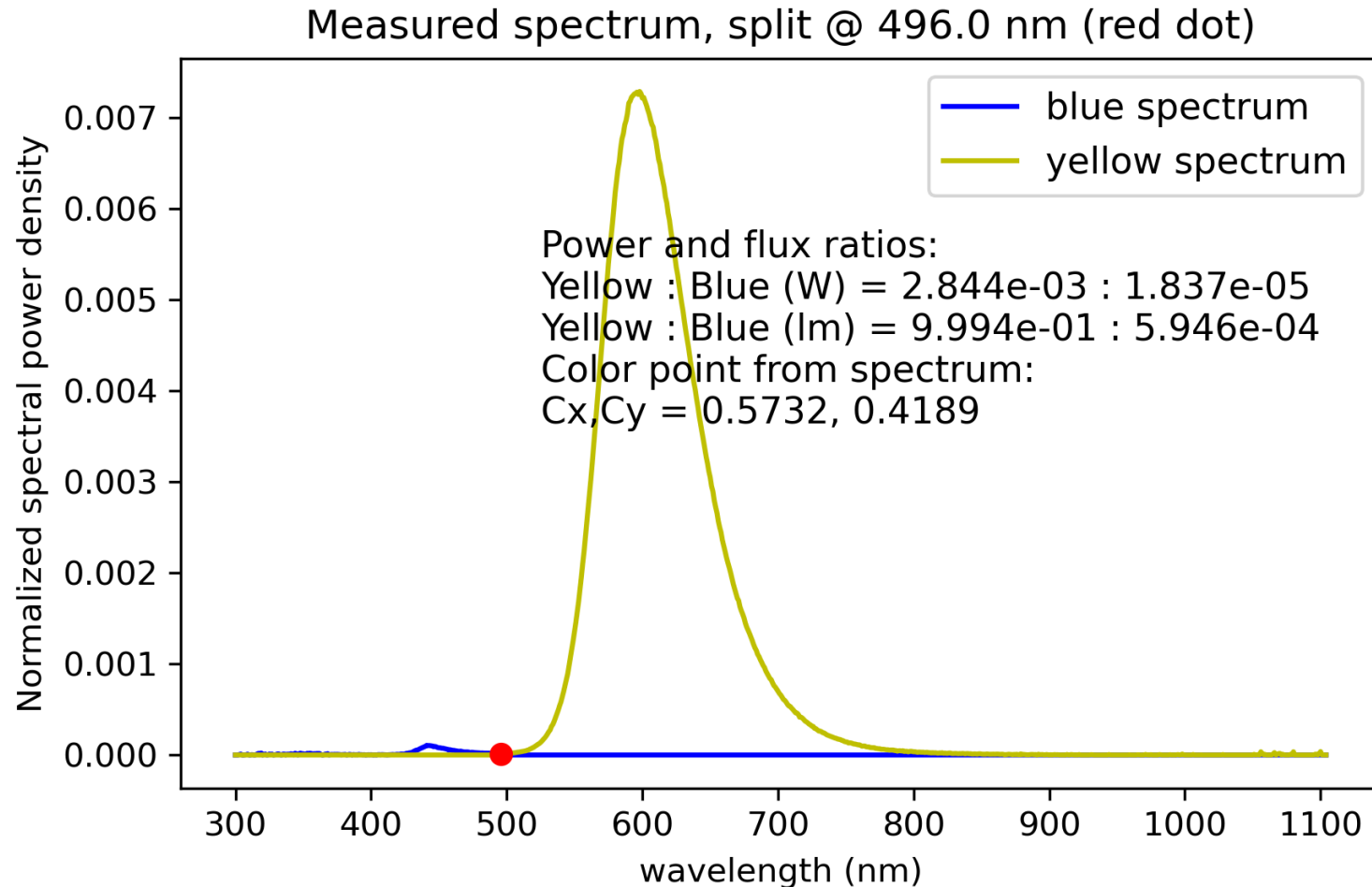
LUXEON FX Plus PC Amber (Gen6)

Illuminance color chart (color over position)



LUXEON FX Plus PC Amber (Gen6)

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



LUXEON FX Plus PC Amber (Gen6)

Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	2.844e-03 : 1.837e-05
yellow : blue ratio (lm) (from measured spectrum)	9.994e-01 : 5.946e-04
Average color point Cx, Cy (from measured spectrum)	0.5732, 0.4189
Average color point Cx, Cy (from simulation)	0.5735, 0.4186
Color point Cx, Cy @ HV (from simulation)	0.5738, 0.4182
Average CCT (K) (from simulation)	1.699e+03

Lumileds ref.: SJ001301_LUXEON FX Plus PC Amber (Gen6)_20210707



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