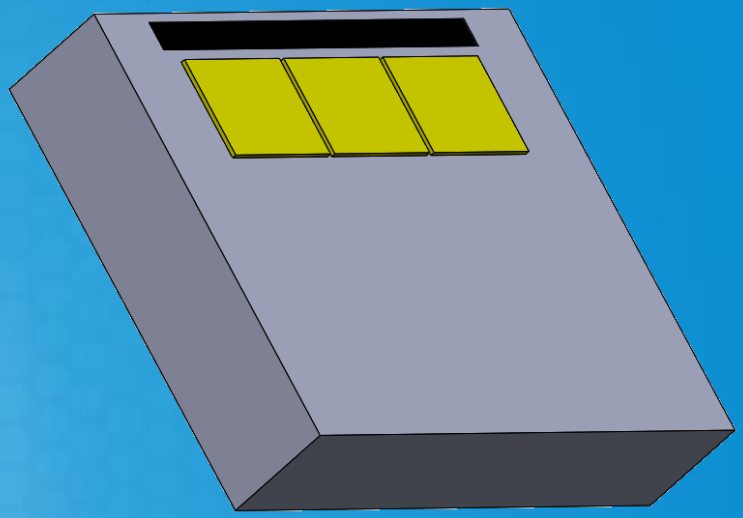
LUXEON Altilon Intense Gen2 1x3

Optical Rayset Readme

August 25th, 2020



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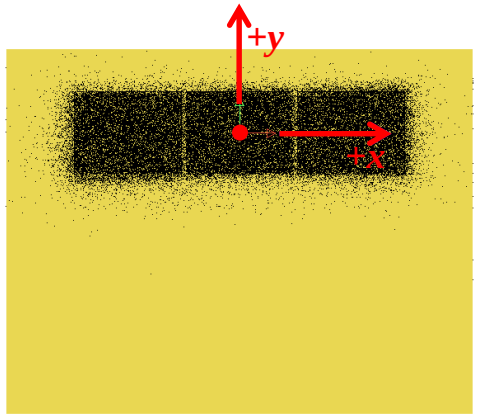
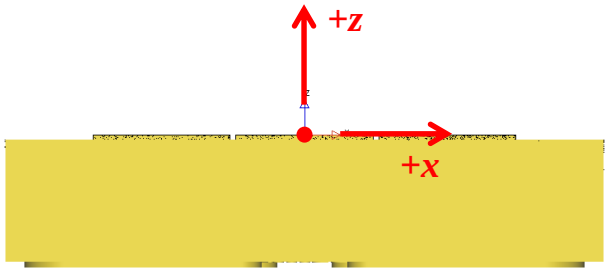
Coordinate system

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 of light emitting area

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

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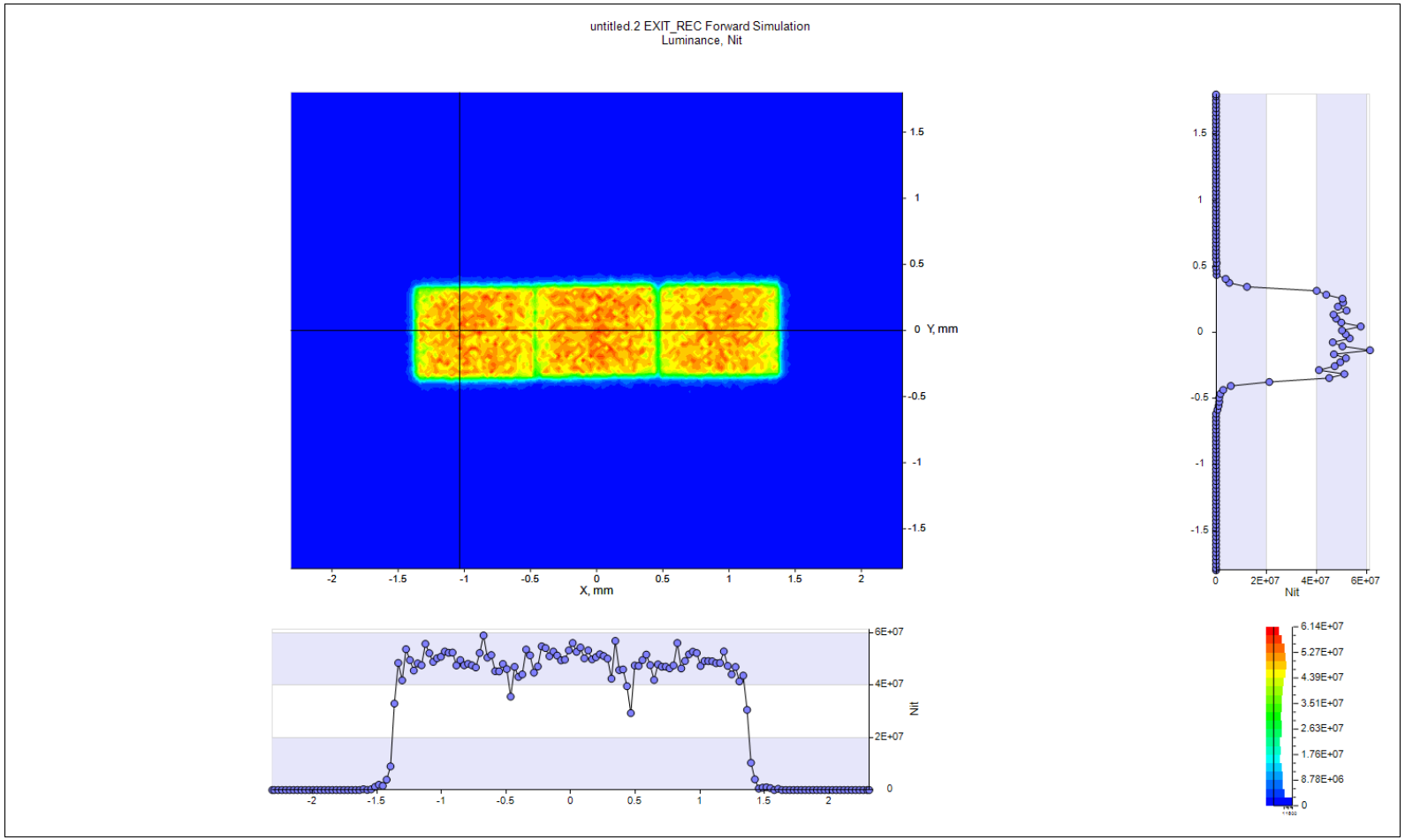
Source size



Source luminance (FWHM) = 2.74 x 0.69 mm²

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

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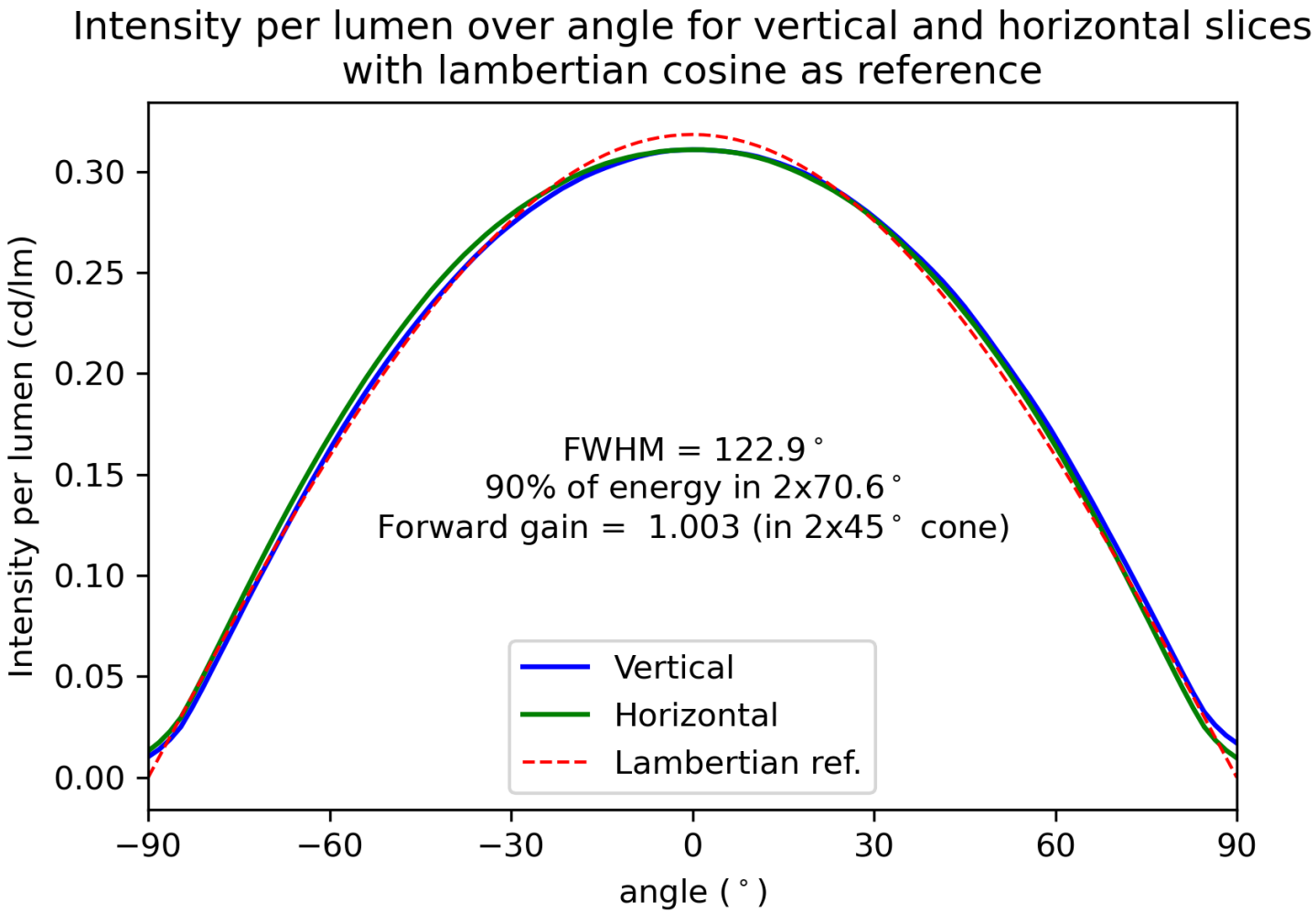
Luminous intensity distribution



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Download File Nomenclature (see next slide)

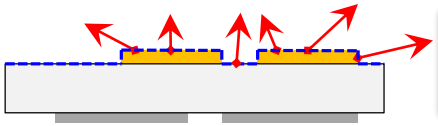
Example

LUXEON_Altilon_SMD2_1x4_gen4plus_20190206_20Mray_proj_Z_spectral_LT.ray

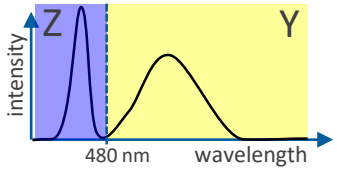
Product Name

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

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

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

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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

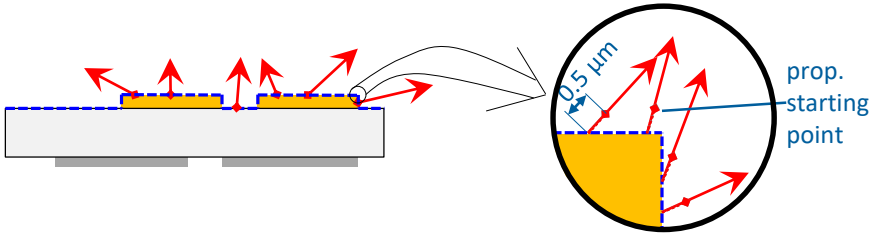
For projected raysets, the following procedure is applied for obtaining the starting points:

(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/bEGYtsZ45j7ERiE

Files available for download

Prosource

RS8	LUXEON_Altilon_Intense2_1x3_20200825_1334.rs8	282 MB	

LightTools

Spectral Projected	LUXEON_Altilon_Intense2_1x3_20200825_40Mrays_proj_spectral_LT.ray	1.19 GB	40Ms
Y-Component Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Y_LT.ray	534 MB	20Ms
Z-Component Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Z_LT.ray	533 MB	20Ms

ASAP & LucidShape

Y-Component Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Y_ASAP.dis	534 MB	20Ms
Z-Component Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Z_ASAP.dis	533 MB	20Ms

OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Y_spectral_Speos.ray	610 MB	20Ms
Z-Component Spectral Projected	LUXEON_Altilon_Intense2_1x3_20200825_20Mrays_proj_Z_spectral_Speos.ray	609 MB	20Ms

Zemax

Spectral Projected	LUXEON_Altilon_Intense2_1x3_20200825_40Mrays_proj_spectral_zemax.dat	1.19 GB	40Ms

Far Field

IES	LUXEON_Altilon_Intense2_1x3_20200825_40Mrays.ies	10.6 kB	

Spectrum

Spectrum	LUXEON_Altilon_Intense2_1x3_20200825_spectrum.txt	17.4 kB	

CAD

STEP	LUXEON_Altilon_Intense2_1x3_20200825_geometry.STEP	966 kB	
IGES	LUXEON_Altilon_Intense2_1x3_20200825_geometry.IGS	747 kB	

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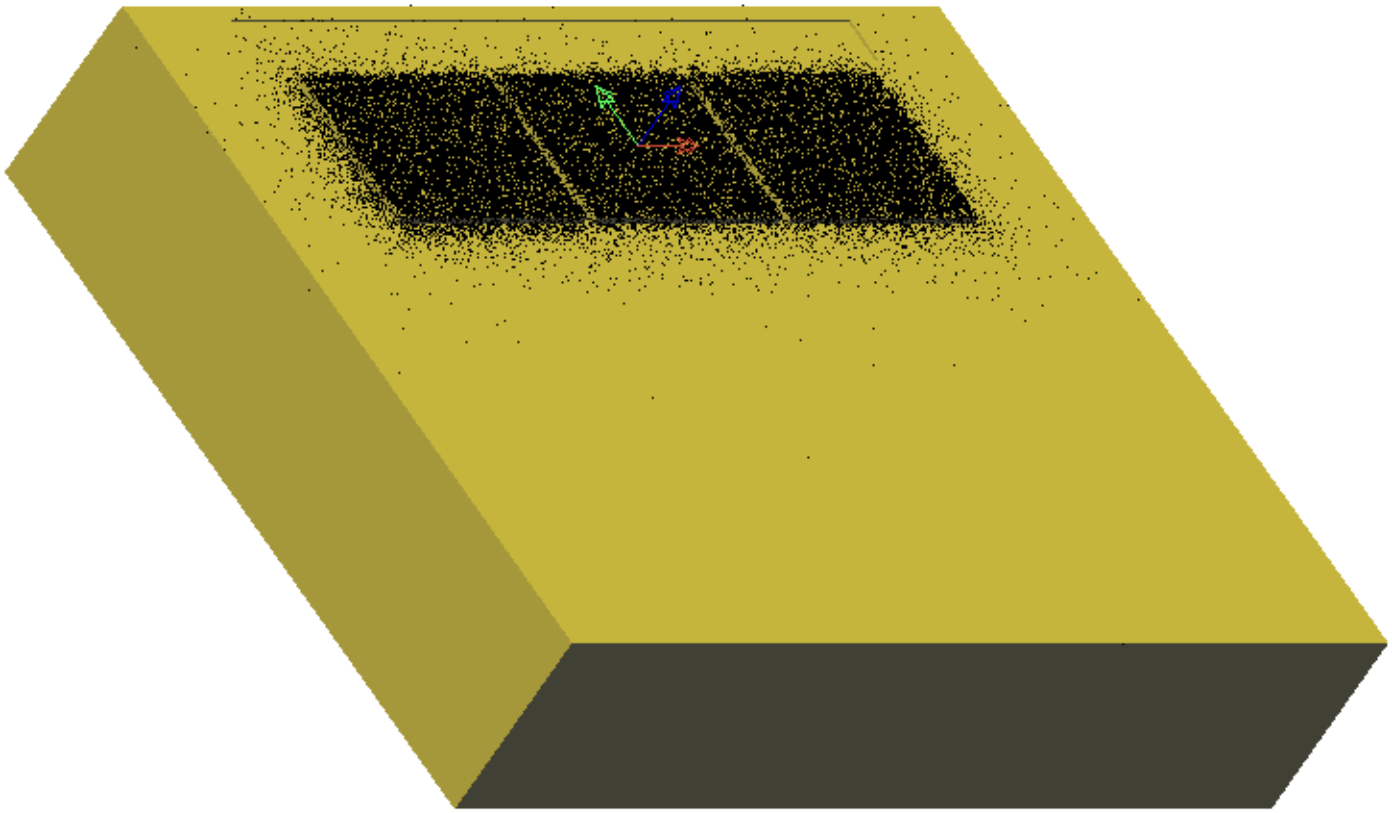
3D CAD view + ray starting points



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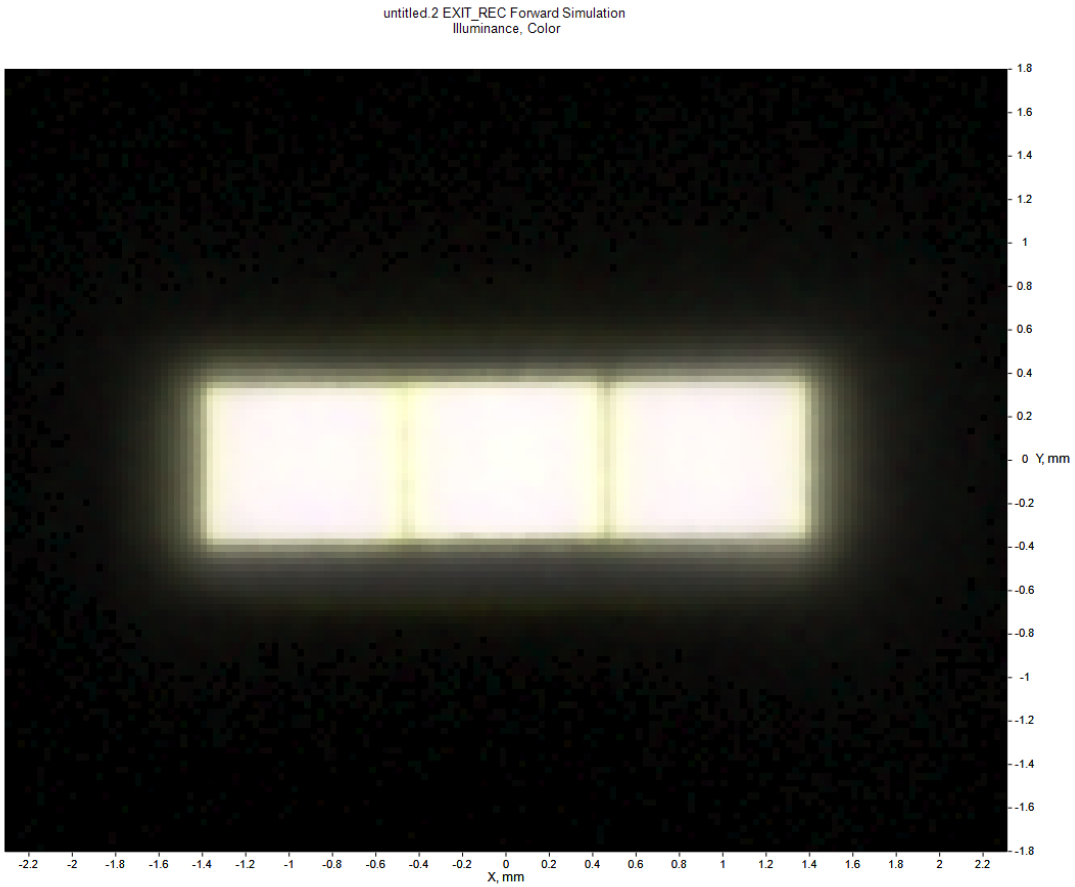
Illuminance color chart (color over position)



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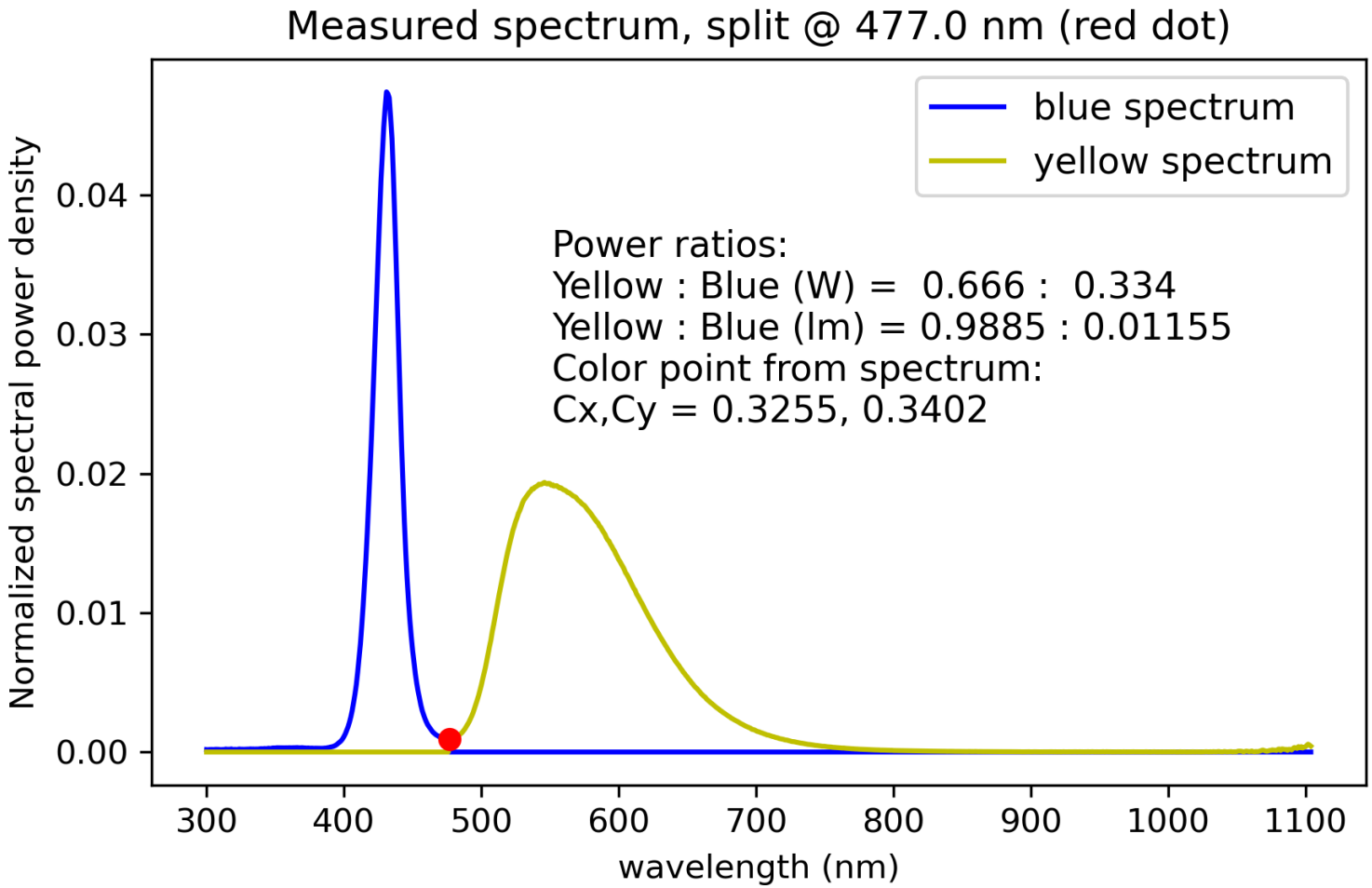
Measured spectrum split in blue (Z) and yellow (Y) components



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Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	0.666 : 0.334
yellow : blue ratio (lm) (from measured spectrum)	0.9885 : 0.01155
Average color point Cx, Cy (from measured spectrum)	0.3255, 0.3402
Average color point Cx, Cy (from simulation)	0.3255, 0.3423
Color point Cx, Cy @ HV (from simulation)	0.3209, 0.3332
Average CCT (K) (from simulation)	5.809e+03

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