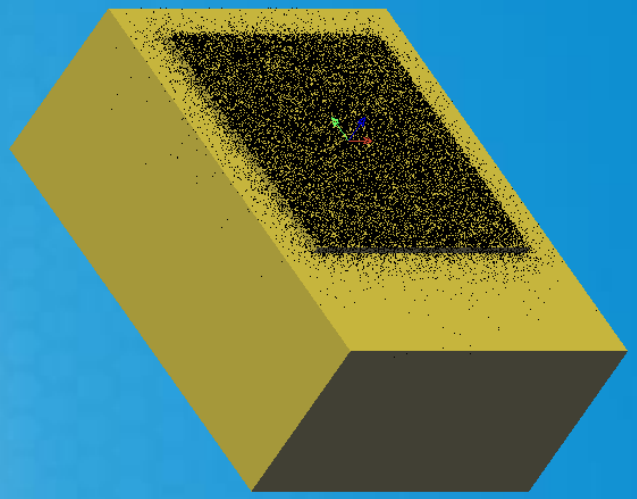
LUXEON FX2-L CW

Optical Rayset Readme

July 23rd, 2020



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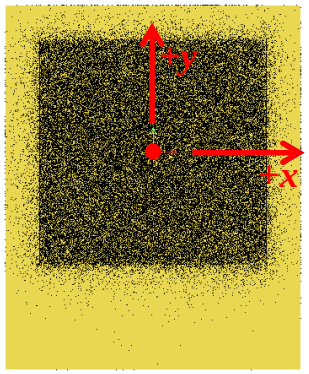
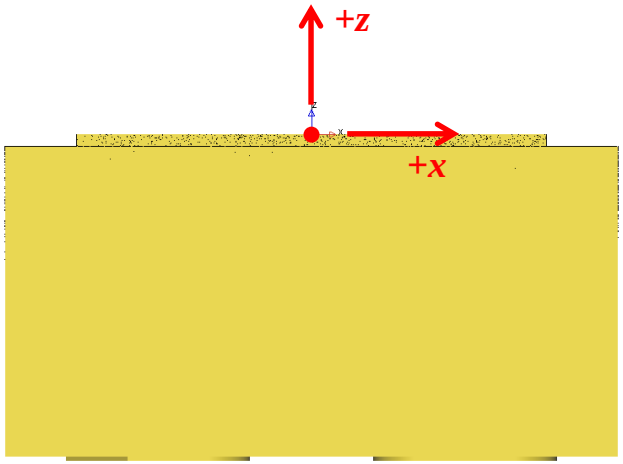
Coordinate system

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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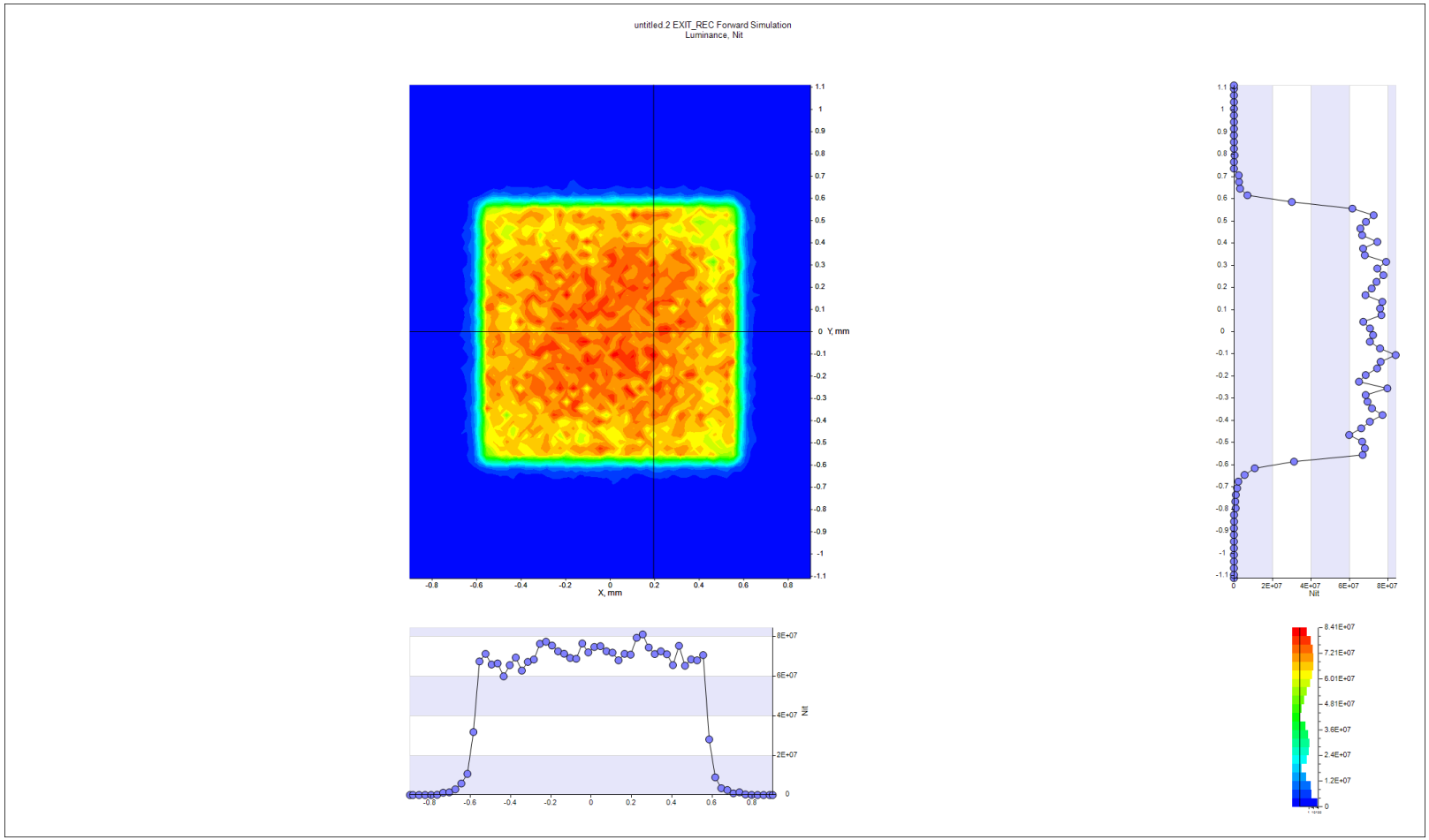
Source size



Source luminance (FWHM) = 1.17 x 1.15 mm²

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

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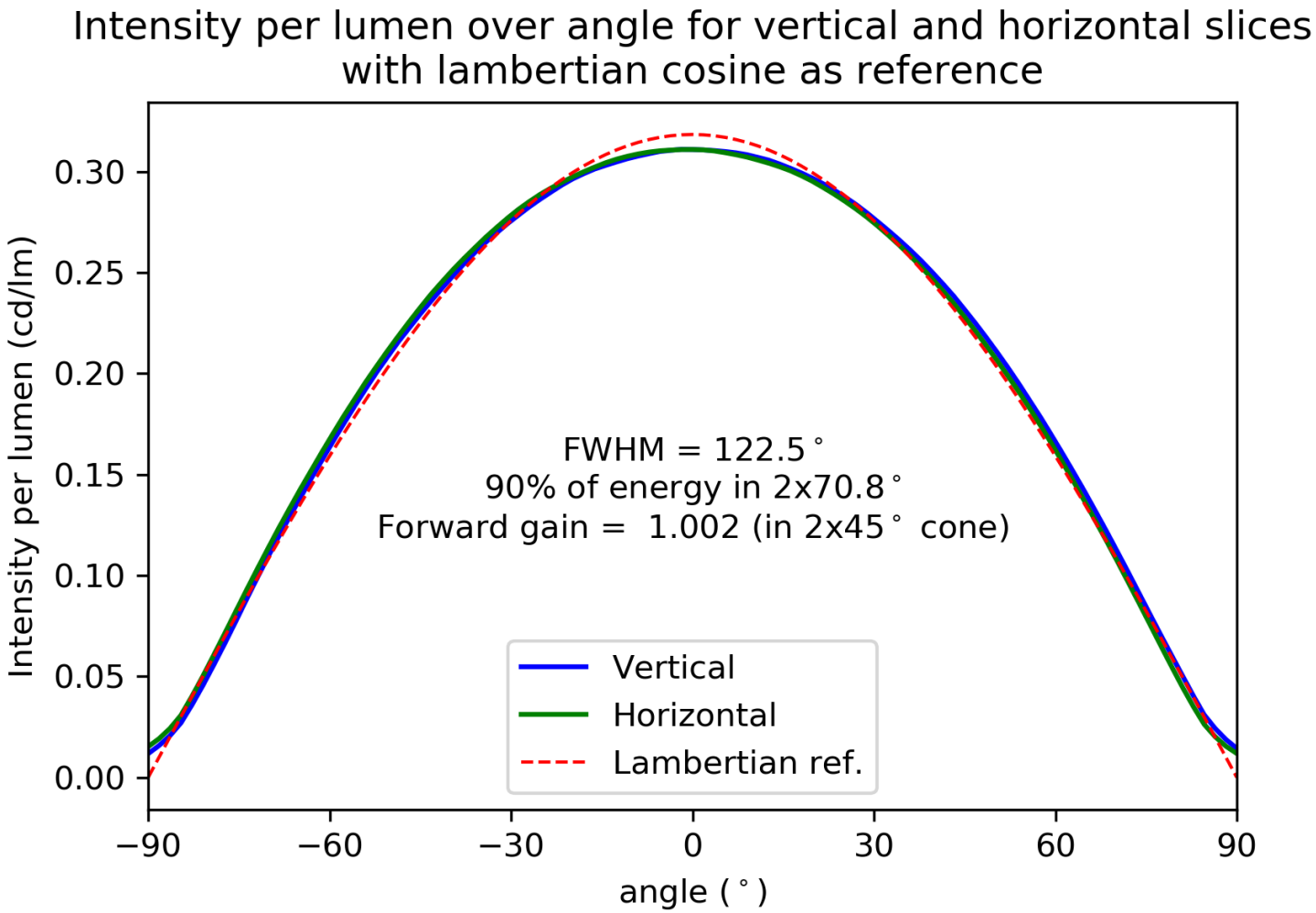
Luminous intensity distribution



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Download File Nomenclature (see next slide)

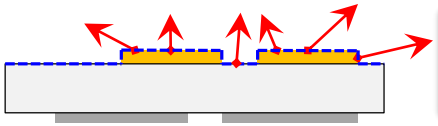
Example

LUXEON_Altilon_SMD2_1x4_gen4plus_20190206_20Mray_proj_Z_spectral_LT.ray

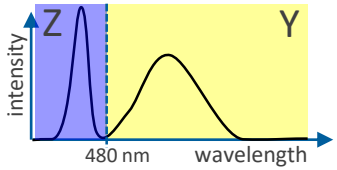
Product Name

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

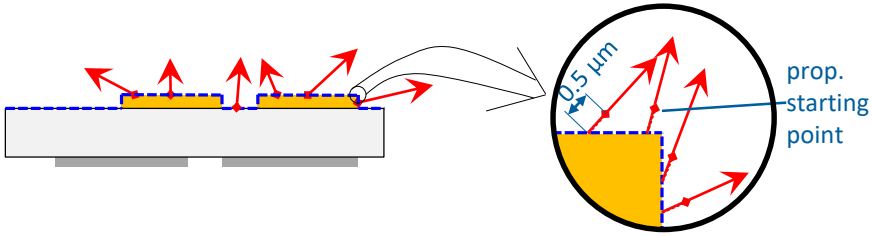
For projected raysets, the following procedure is applied for obtaining the starting points:

(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/NqLwaKb6tibQxM9

Files available for download

Prosource

RS8	LUXEON_FX2_L_CW_20200723_20MRays_1316.rs8	641 MB	

LightTools

Spectral Projected	LUXEON_FX2_L_CW_20200723_40MRays_proj_spectral_LT.ray	1.19 GB	40MRays
Y-Component Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Y_LT.ray	533 MB	20MRays
Z-Component Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Z_LT.ray	531 MB	20MRays

ASAP & LucidShape

Y-Component Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Y_ASAP.dis	533 MB	20MRays
Z-Component Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Z_ASAP.dis	531 MB	20MRays

OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Y_spectral_Speos.ray	609 MB	20MRays
Z-Component Spectral Projected	LUXEON_FX2_L_CW_20200723_20MRays_proj_Z_spectral_Speos.ray	607 MB	20MRays

Zemax

Spectral Projected	LUXEON_FX2_L_CW_20200723_40MRays_proj_spectral_zemax.dat	1.19 GB	40MRays

Far Field

IES	LUXEON_FX2_L_CW_20200723_40MRays.ies	10.6 kB	

Spectrum

Spectrum	LUXEON_FX2_L_CW_20200723_spectrum.txt	17.4 kB	

CAD

STEP	LUXEON_FX2_L_CW_20200723_geometry.STEP	102 kB	
IGES	LUXEON_FX2_L_CW_20200723_geometry.IGS	77.4 kB	

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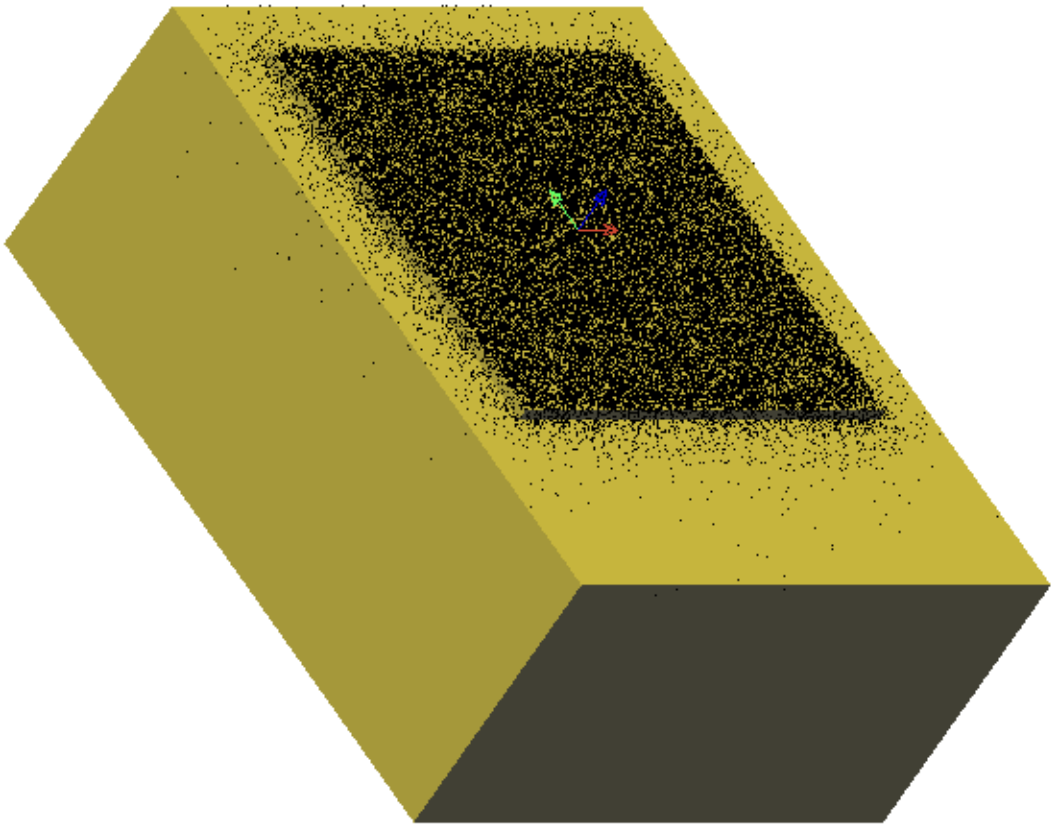
3D CAD view + ray starting points



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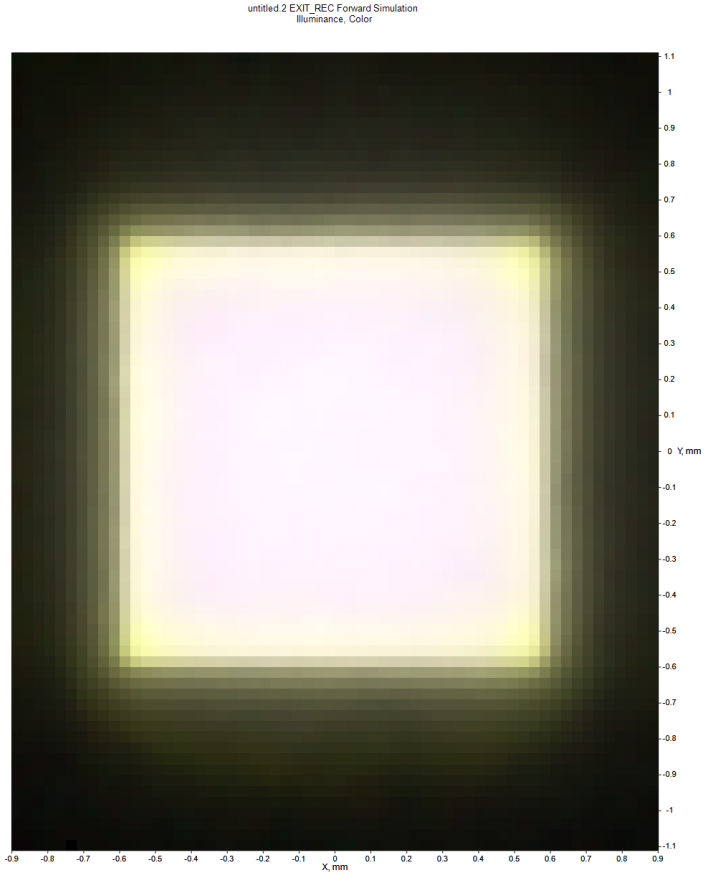
Illuminance color chart (color over position)



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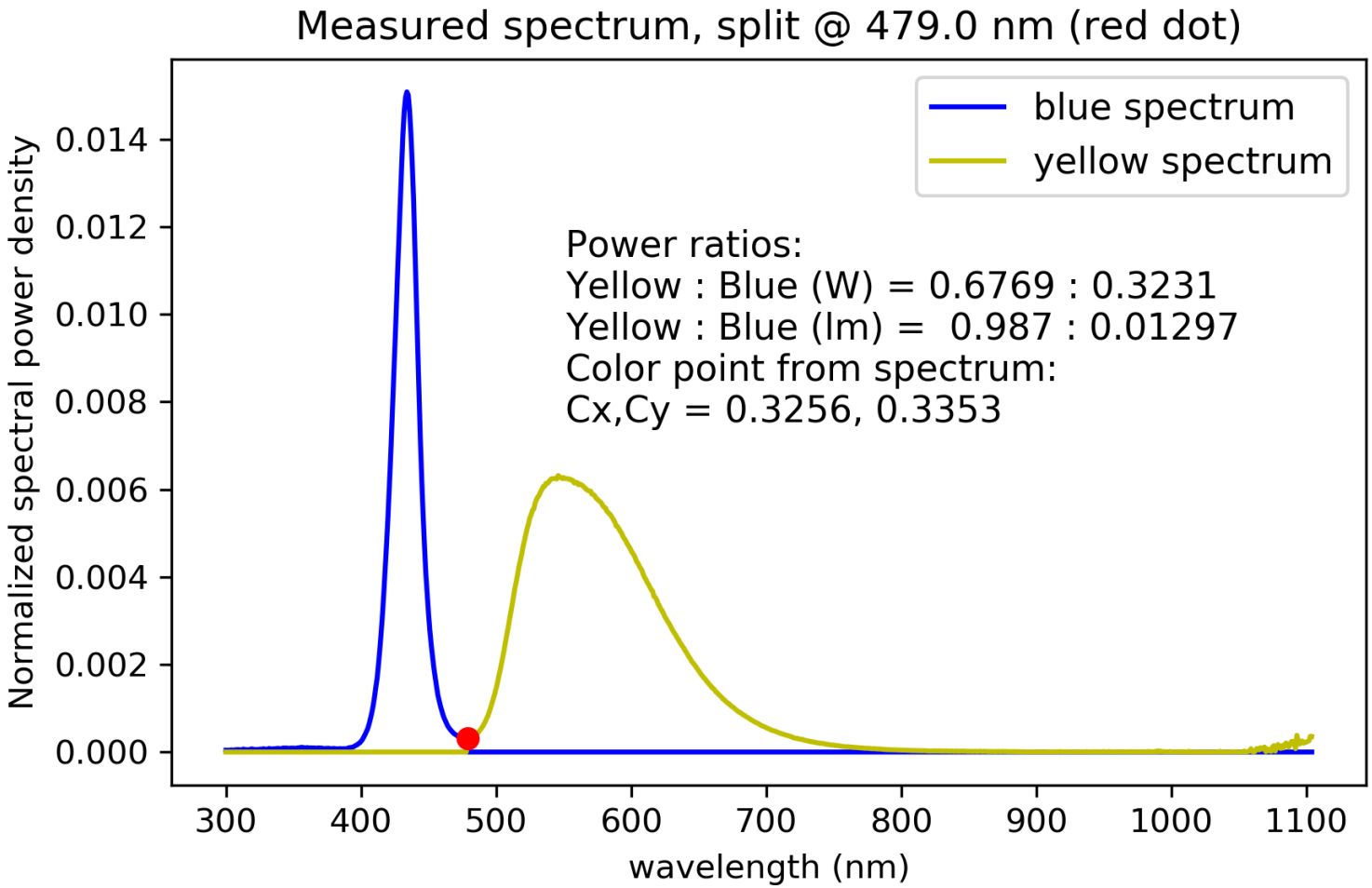
Measured spectrum split in blue (Z) and yellow (Y) components



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Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	0.6769 : 0.3231
yellow : blue ratio (lm) (from measured spectrum)	0.987 : 0.01297
Average color point Cx, Cy (from measured spectrum)	0.3256, 0.3353
Average color point Cx, Cy (from simulation)	0.3254, 0.3371
Color point Cx, Cy @ HV (from simulation)	0.3176, 0.3206
Average CCT (K) (from simulation)	5.824e+03

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Lumileds ref.: 1316_LUXEON FX2-L CW_20200723

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