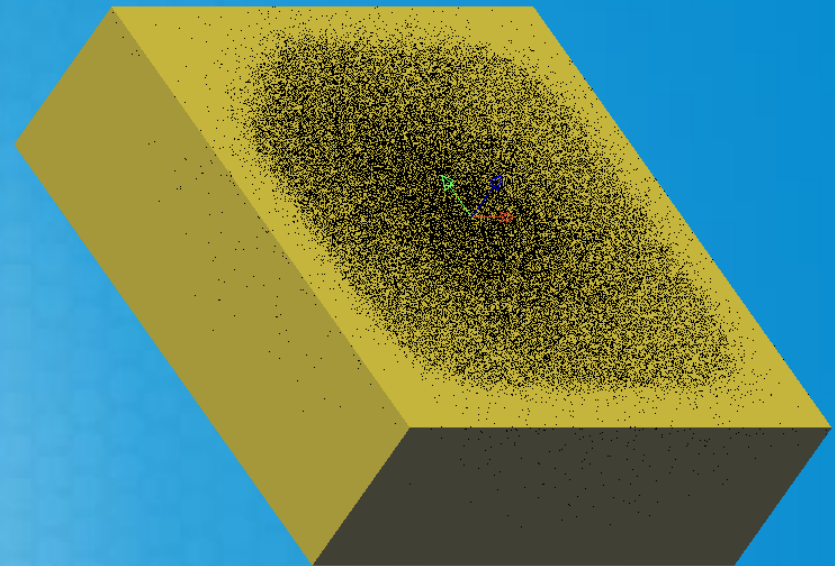


# LUXEON Versat 2020 150 Cool White

## Optical Rayset Readme

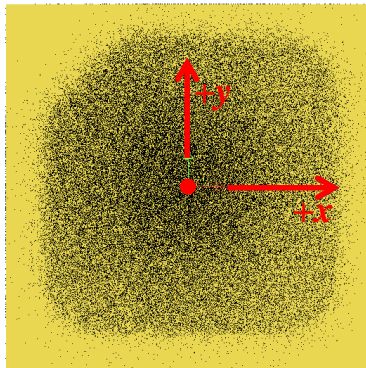
February 19th, 2020



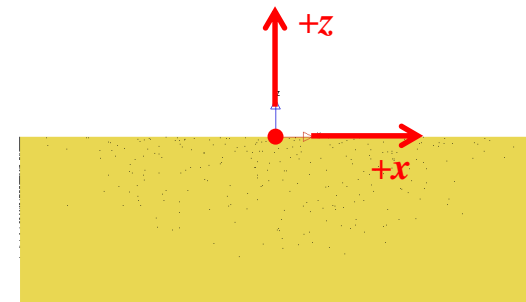
# LUXEON Versat 2020 150 Cool White

## Coordinate system

Top view



Side view

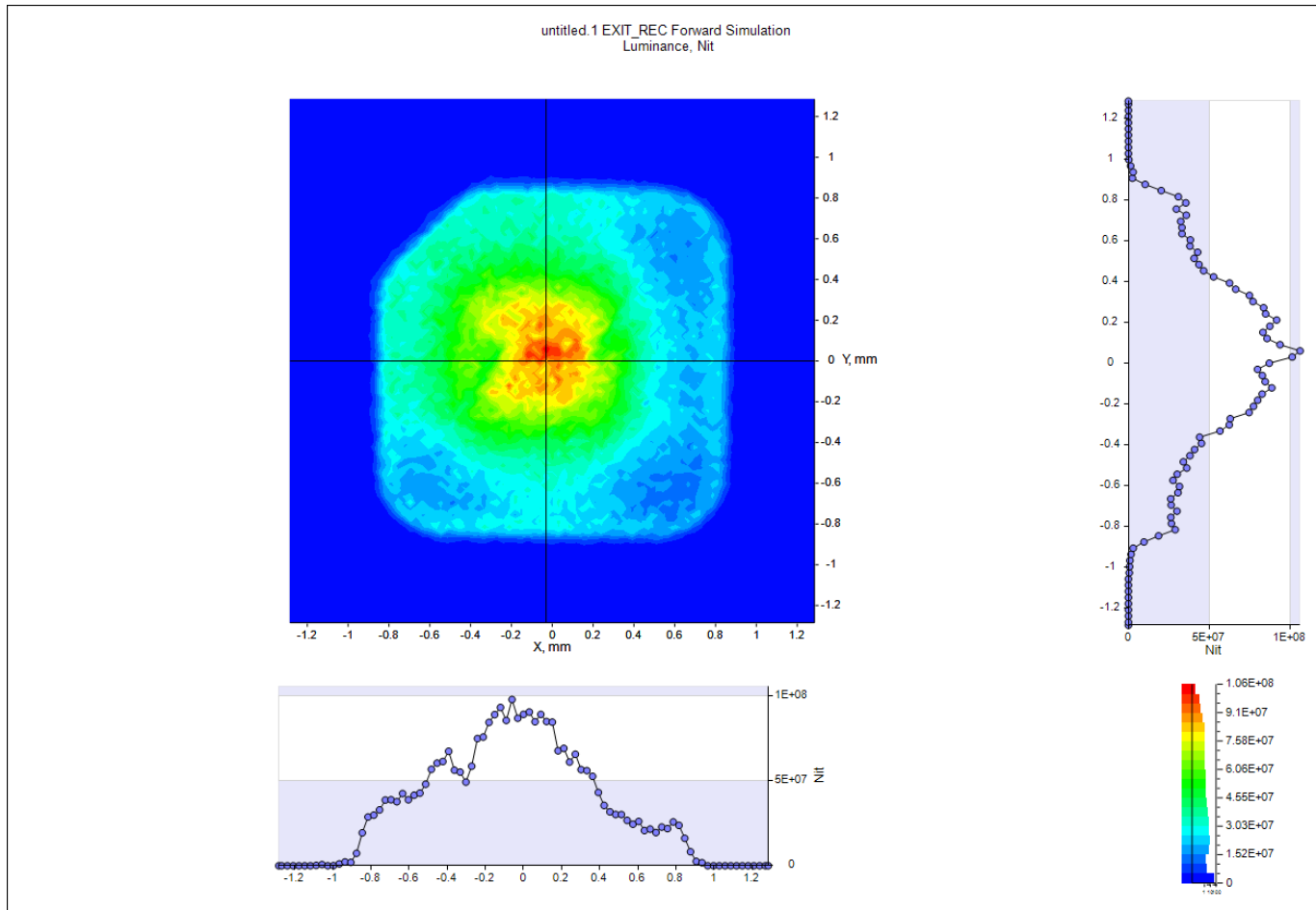


**CAD file and rayset files share the same coordinate system,  
the origin is marked by the red dot in the sketches above:**

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

# LUXEON Versat 2020 150 Cool White

## Source size

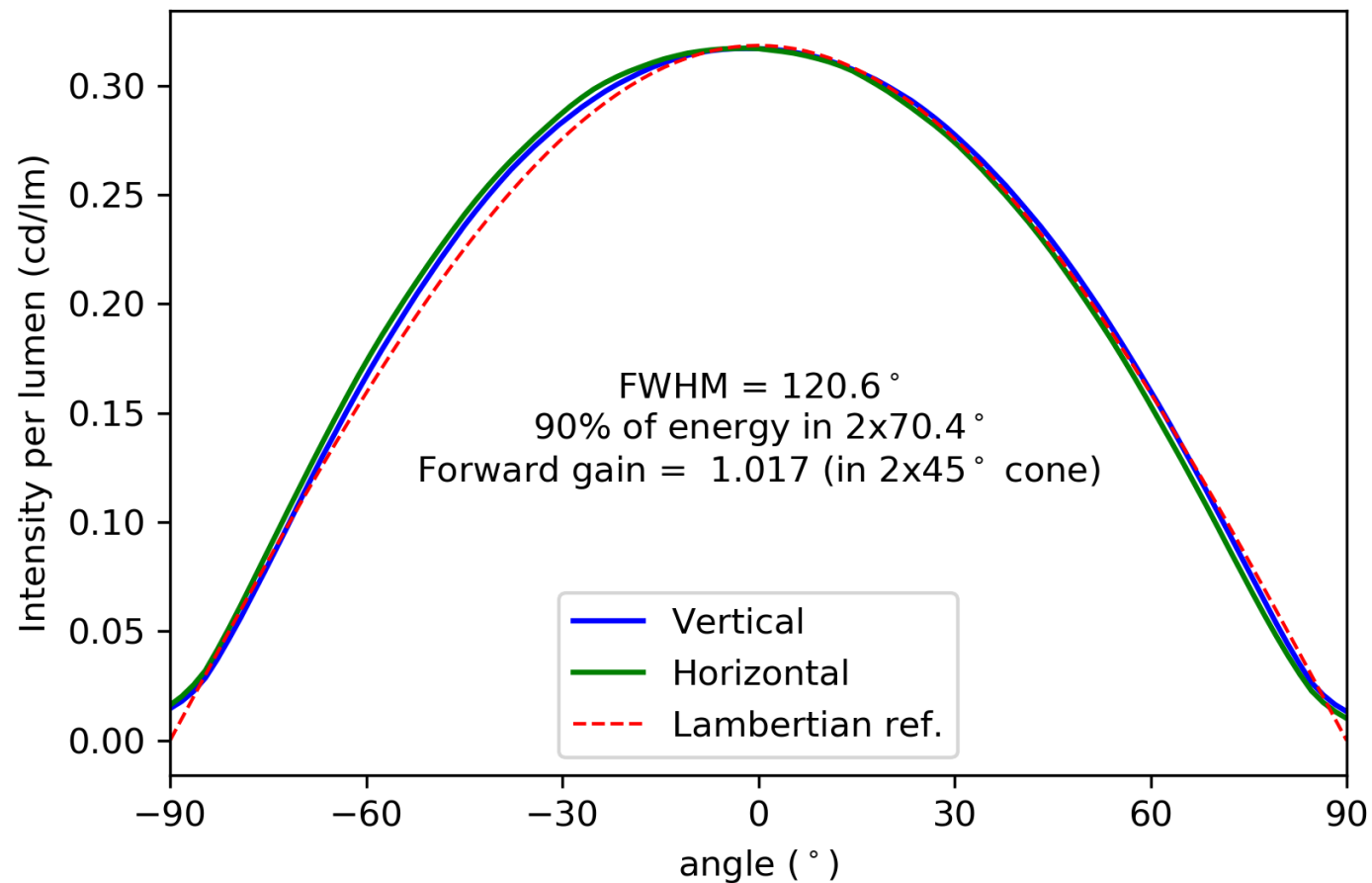


The two orthogonal lines in the luminance image mark the reference planes of the two luminance cross sections.

# LUXEON Versat 2020 150 Cool White

## Luminous intensity distribution

Intensity per lumen over angle 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

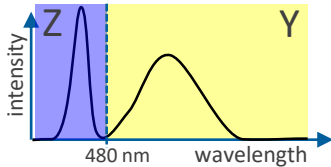
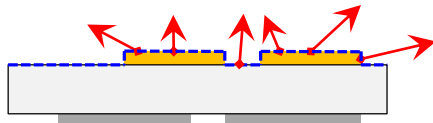
**Spectral Information**

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

**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.

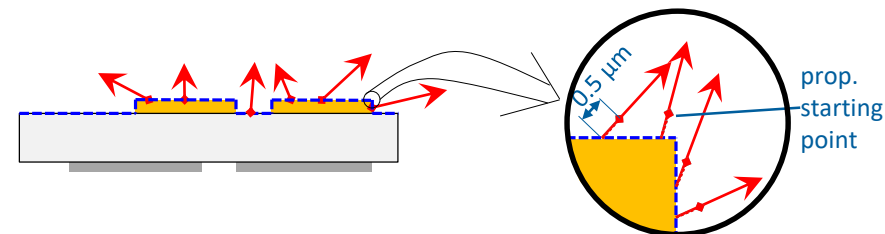
### Projected Raysets: Propagated ray starting points

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 Versat 2020 150 Cool White

Link to download folder

<https://raysets.lumileds.com/index.php/s/e7SeDABsnGoPa5j>

## Files available for download

### Prosource

RS8	LUXEON_Versat_2020_150_CW_20200219_1271.rs8	931 MB
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### LightTools

Spectral Projected	LUXEON_Versat_2020_150_CW_20200219_40MRays_proj_spectral_LT.ray	1.18 GB	40MRays
Y-Component Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Y_LT.ray	534 MB	20MRays
Z-Component Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Z_LT.ray	519 MB	20MRays

### ASAP & LucidShape

Y-Component Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Y_ASAP.dis	534 MB	20MRays
Z-Component Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Z_ASAP.dis	519 MB	20MRays

### OPTIS SPEOS

Y-Component Spectral Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Y_spectral_Speos.ray	610 MB	20MRays
Z-Component Spectral Projected	LUXEON_Versat_2020_150_CW_20200219_20MRays_proj_Z_spectral_Speos.ray	593 MB	20MRays

### Zemax

Spectral Projected	LUXEON_Versat_2020_150_CW_20200219_40MRays_proj_spectral_zemax.dat	1.18 GB	40MRays
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### Far Field

IES	LUXEON_Versat_2020_150_CW_20200219_40MRays.ies	10.6 kB
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### Spectrum

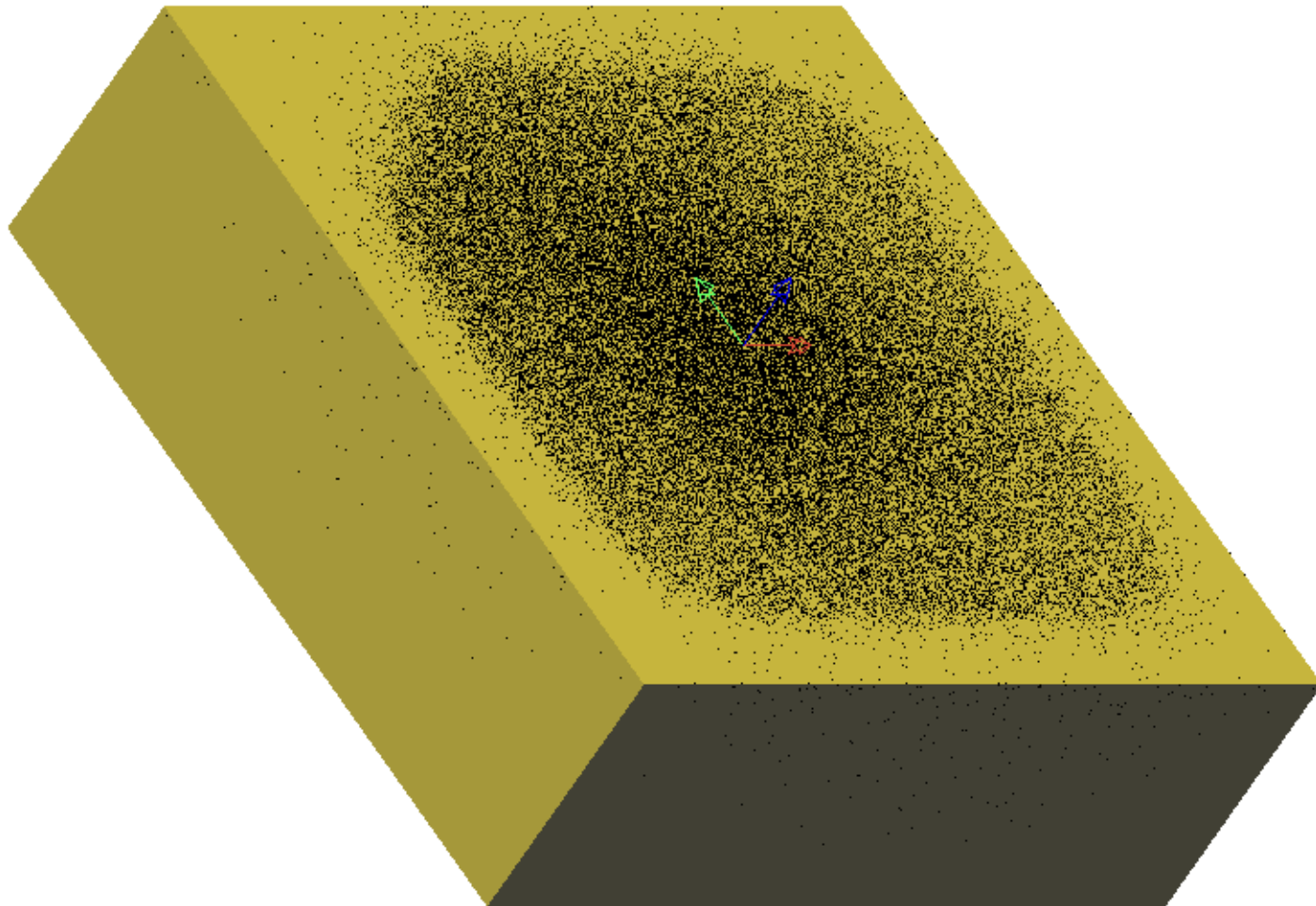
Spectrum	LUXEON_Versat_2020_150_CW_20200219_spectrum.txt	17.4 kB
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### CAD

STEP	LUXEON_Versat_2020_150_CW_20200219_geometry.STEP	77.3 kB
IGES	LUXEON_Versat_2020_150_CW_20200219_geometry.IGS	135 kB

# LUXEON Versat 2020 150 Cool White

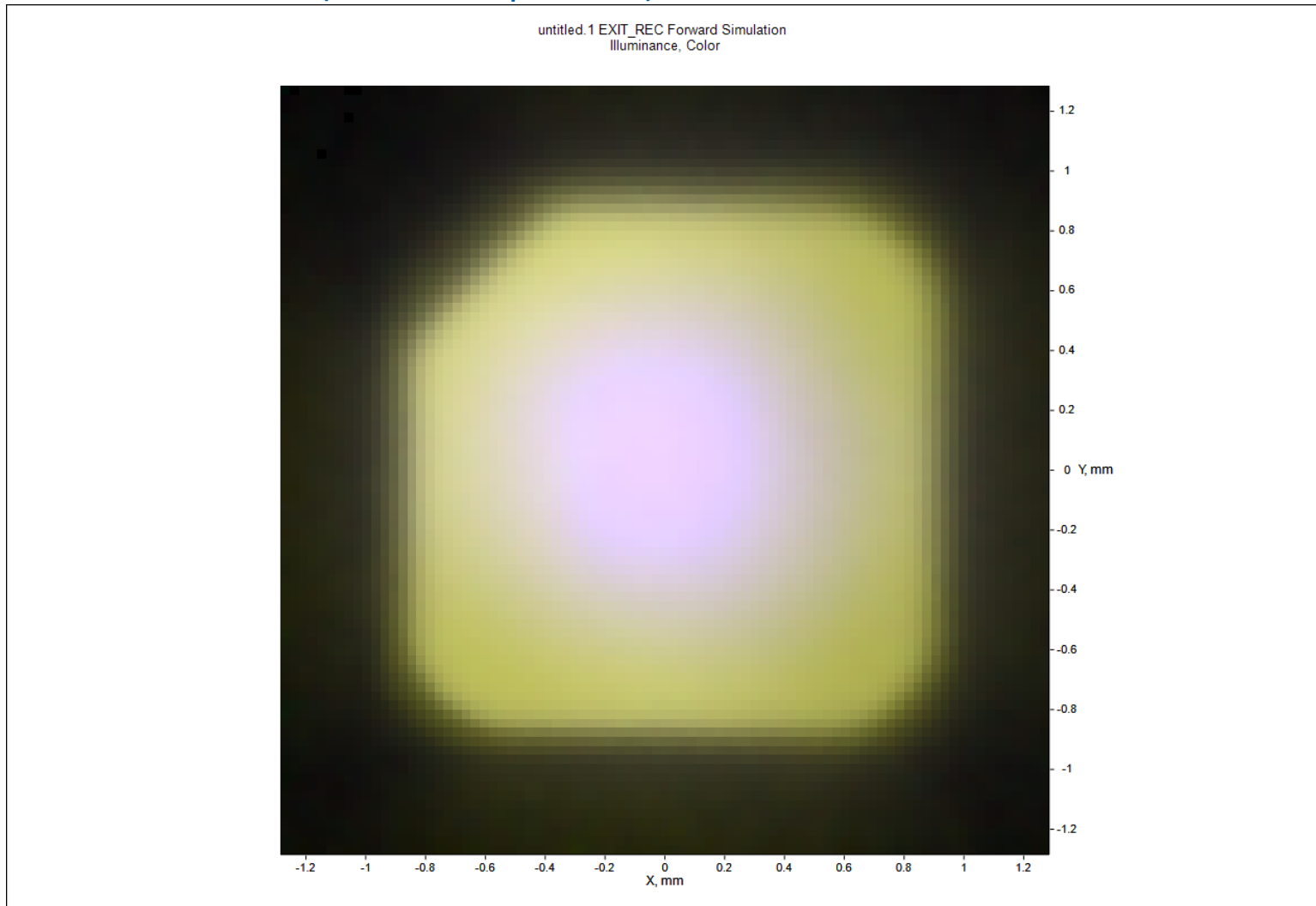
3D CAD view + ray starting points





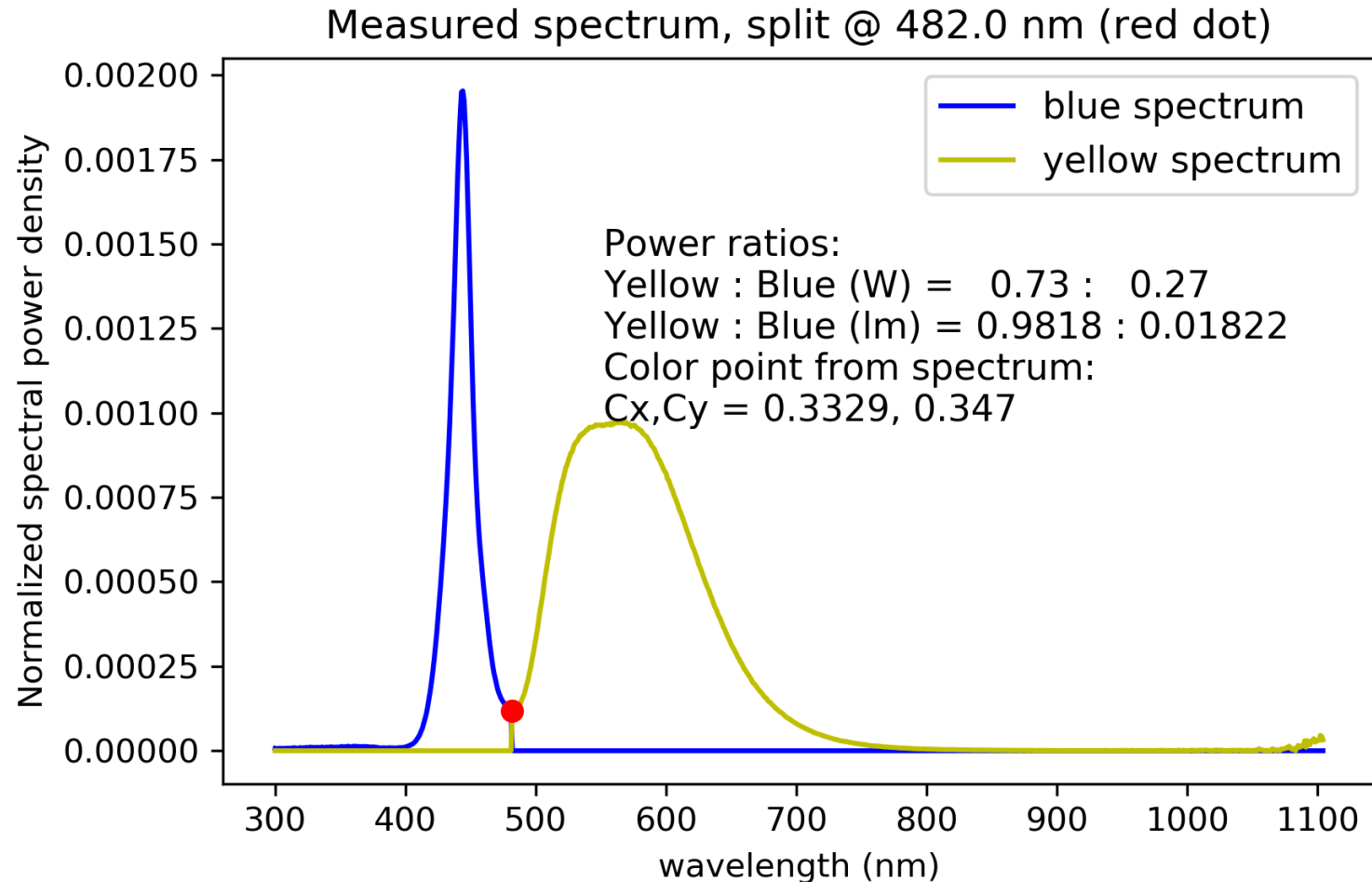
# LUXEON Versat 2020 150 Cool White

## Illuminance color chart (color over position)



# LUXEON Versat 2020 150 Cool White

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



## LUXEON Versat 2020 150 Cool White

### Color data info

Parameter	Value
yellow : blue ratio (W) (from measured spectrum)	0.73 : 0.27
yellow : blue ratio (lm) (from measured spectrum)	0.9818 : 0.01822
Average color point Cx, Cy (from measured spectrum)	0.3329, 0.347
Average color point Cx, Cy (from simulation)	0.3322, 0.3473
Color point Cx, Cy @ HV (from simulation)	0.3261, 0.335
Average CCT (K) (from simulation)	5.512e+03

Lumileds ref.: 1271\_LUXEON Versat 2020 150 Cool White\_20200219



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