

# LUXEON Altilon SMD DT

## Optical Rayset Readme

February 28th, 2019



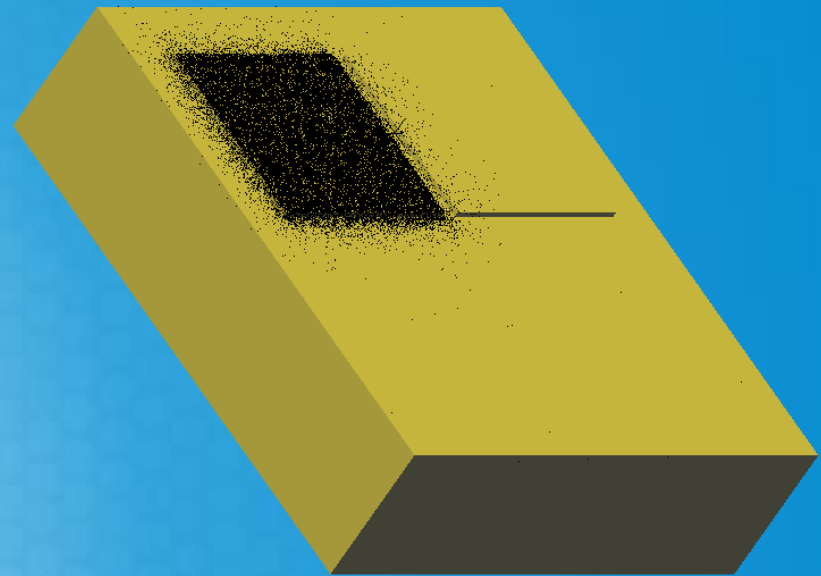
## Notes specific to the LUXEON Altilon SMD DT raysets

- 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 – 13: white (amber off)
  - Page 14 – 24: 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

## Optical Rayset Readme

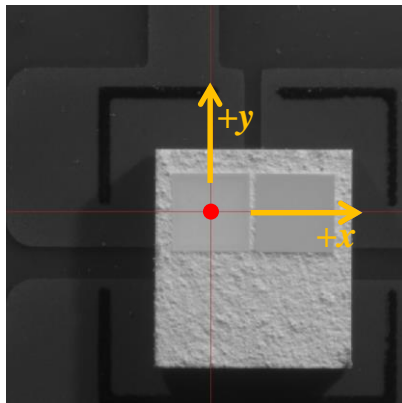
February 28th, 2019



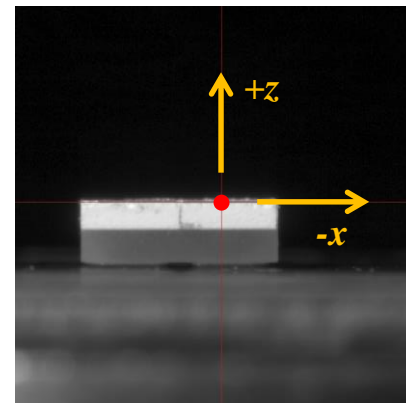
# LUXEON Altilon SMD DT - Cool White

## Measurement Reference Location

Top view



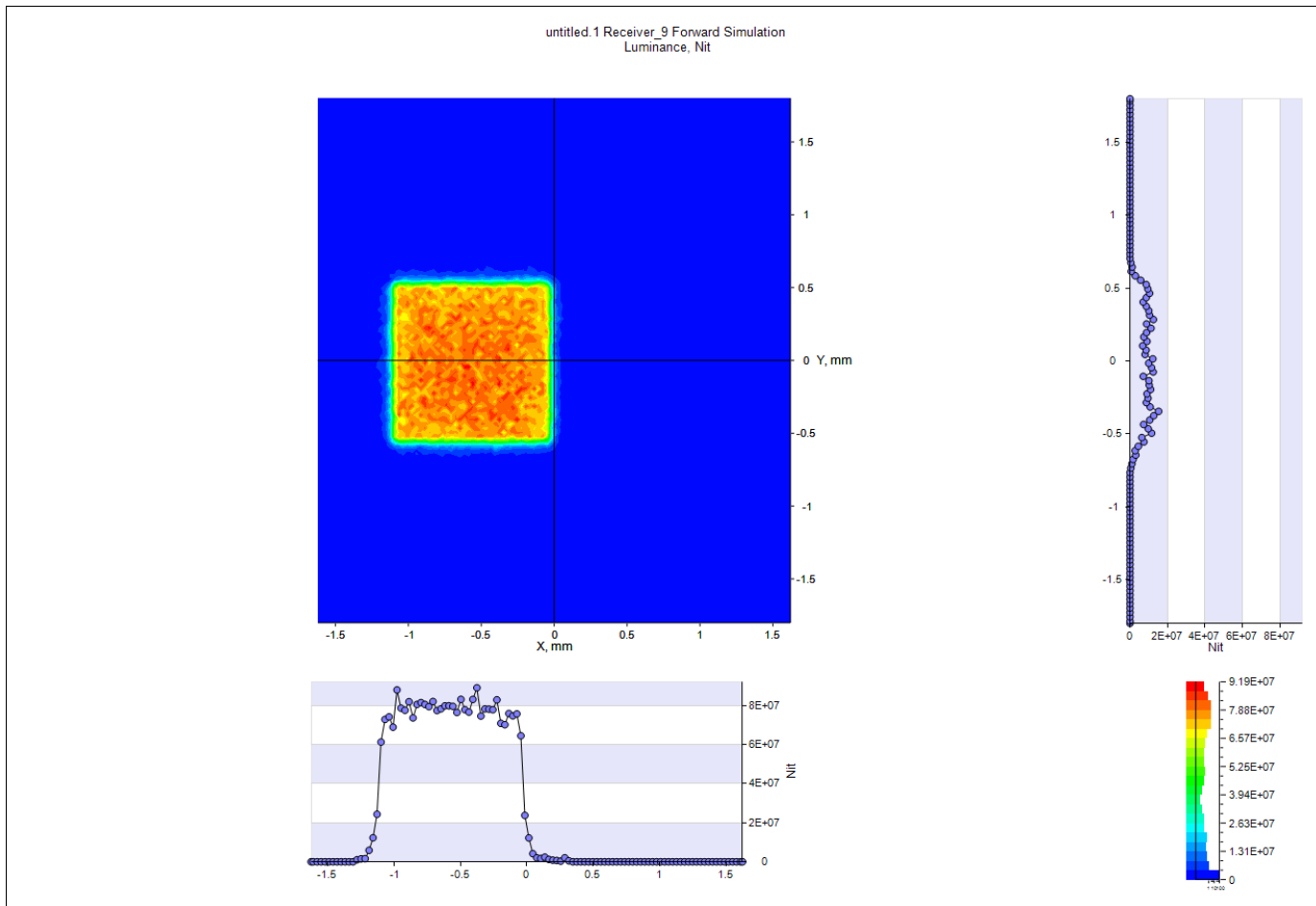
Side view



- Red dot indicates measurement origin
- xy centered on center of package
- z-axis referenced to top edge of package

# LUXEON Altilon SMD DT - Cool White

## Source Size

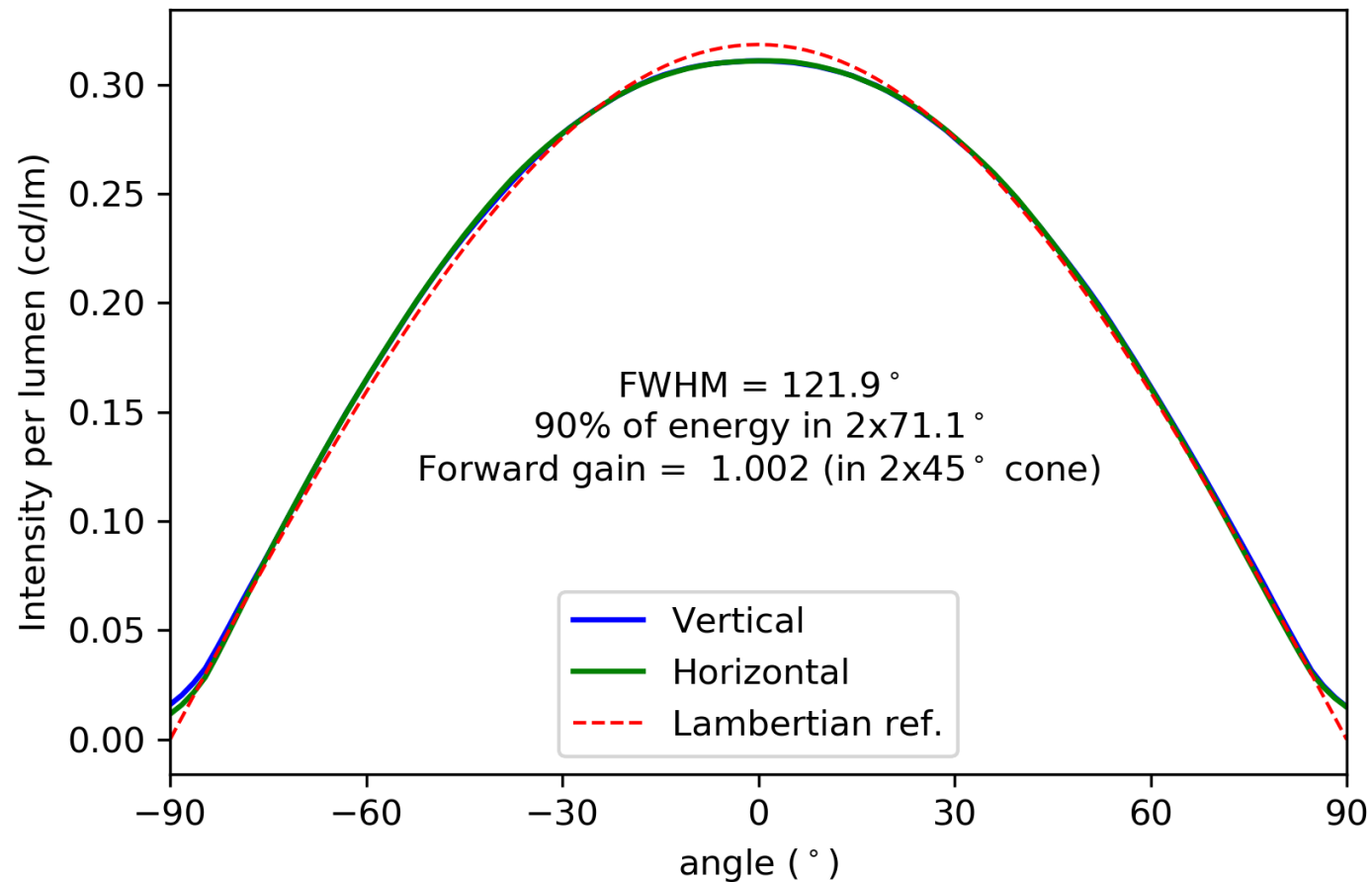


Source luminance (FWHM) =  $1.08 \times 1.09 \text{ mm}^2$

# LUXEON Altilon SMD DT - 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

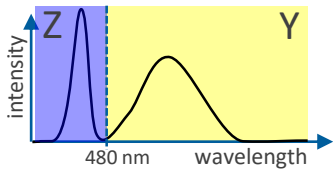
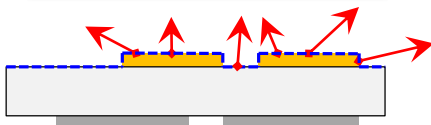
**Spectral Information**

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

**Target Software Package**

LightTools (LT), ASAP, Zemax, ...

**File Extension**



# LUXEON Altilon SMD DT - Cool White

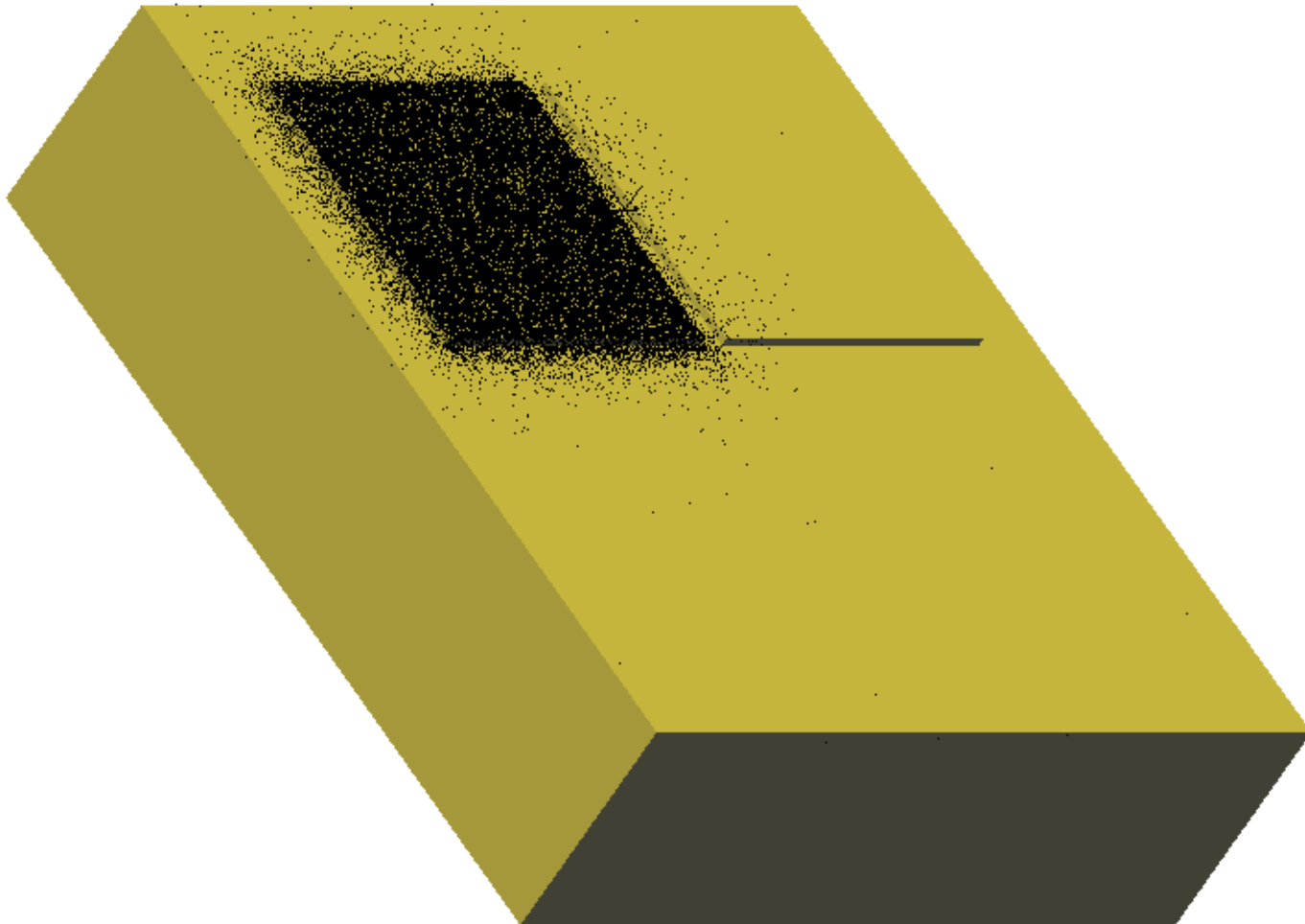
## Rayset Download Links

|                 |                                 |   |         |     |
|-----------------|---------------------------------|---|---------|-----|
| Prosource       |                                 | LUXEON_Altilon_DT_CW_20190228_1040.rs8<br>Download link: <a href="https://www.sendspace.com/pro/dl/ijf1z1">https://www.sendspace.com/pro/dl/ijf1z1</a>                      | 173 MB  |     |
| LightTools      | Spectral Projected:             | LUXEON_Altilon_DT_CW_20190228_20M_proj_spectral_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/9qku95">https://www.sendspace.com/pro/dl/9qku95</a>      | 1.19 GB | 20M |
|                 | Y-Component Projected:          | LUXEON_Altilon_DT_CW_20190228_20M_proj_Y_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/r21y2c">https://www.sendspace.com/pro/dl/r21y2c</a>             | 533 MB  | 20M |
|                 | Z-Component Projected:          | LUXEON_Altilon_DT_CW_20190228_20M_proj_Z_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/gonew8">https://www.sendspace.com/pro/dl/gonew8</a>             | 530 MB  | 20M |
| ASAP/LucidShape | Y-Component Projected:          | LUXEON_Altilon_DT_CW_20190228_20M_proj_Y_ASAP.dis<br>Download link: <a href="https://www.sendspace.com/pro/dl/xb9fni">https://www.sendspace.com/pro/dl/xb9fni</a>           | 533 MB  | 20M |
|                 | Z-Component Projected:          | LUXEON_Altilon_DT_CW_20190228_20M_proj_Z_ASAP.dis<br>Download link: <a href="https://www.sendspace.com/pro/dl/9pija5">https://www.sendspace.com/pro/dl/9pija5</a>           | 530 MB  | 20M |
| OPTIS SPEOS     | Y-Component Spectral Projected: | LUXEON_Altilon_DT_CW_20190228_20M_proj_Y_spectral_Speos.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/zt5uo6">https://www.sendspace.com/pro/dl/zt5uo6</a> | 609 MB  | 20M |
|                 | Z-Component Spectral Projected: | LUXEON_Altilon_DT_CW_20190228_20M_proj_Z_spectral_Speos.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/ro34nc">https://www.sendspace.com/pro/dl/ro34nc</a> | 606 MB  | 20M |
| Zemax           | Spectral Projected:             | LUXEON_Altilon_DT_CW_20190228_20M_proj_spectral_zemax.dat<br>Download link: <a href="https://www.sendspace.com/pro/dl/pjsg1i">https://www.sendspace.com/pro/dl/pjsg1i</a>   | 1.19 GB | 20M |
| Far Field       | ies:                            | LUXEON_Altilon_DT_CW_20190228_20M.ies<br>Download link: <a href="https://www.sendspace.com/pro/dl/q2awe0">https://www.sendspace.com/pro/dl/q2awe0</a>                       | 618 kB  |     |
| Spectrum        |                                 | LUXEON_Altilon_DT_CW_20190228_spectrum.txt<br>Download link: <a href="https://www.sendspace.com/pro/dl/uynwu0">https://www.sendspace.com/pro/dl/uynwu0</a>                  | 16.6 kB |     |
| CAD             | STEP:                           | LUXEON_Altilon_DT_20190228_geometry.STEP<br>Download link: <a href="https://www.sendspace.com/pro/dl/a6vrac">https://www.sendspace.com/pro/dl/a6vrac</a>                    | 121 kB  |     |
|                 | IGES:                           | LUXEON_Altilon_DT_20190228_geometry.IGS<br>Download link: <a href="https://www.sendspace.com/pro/dl/nbwfcl">https://www.sendspace.com/pro/dl/nbwfcl</a>                     | 253 kB  |     |



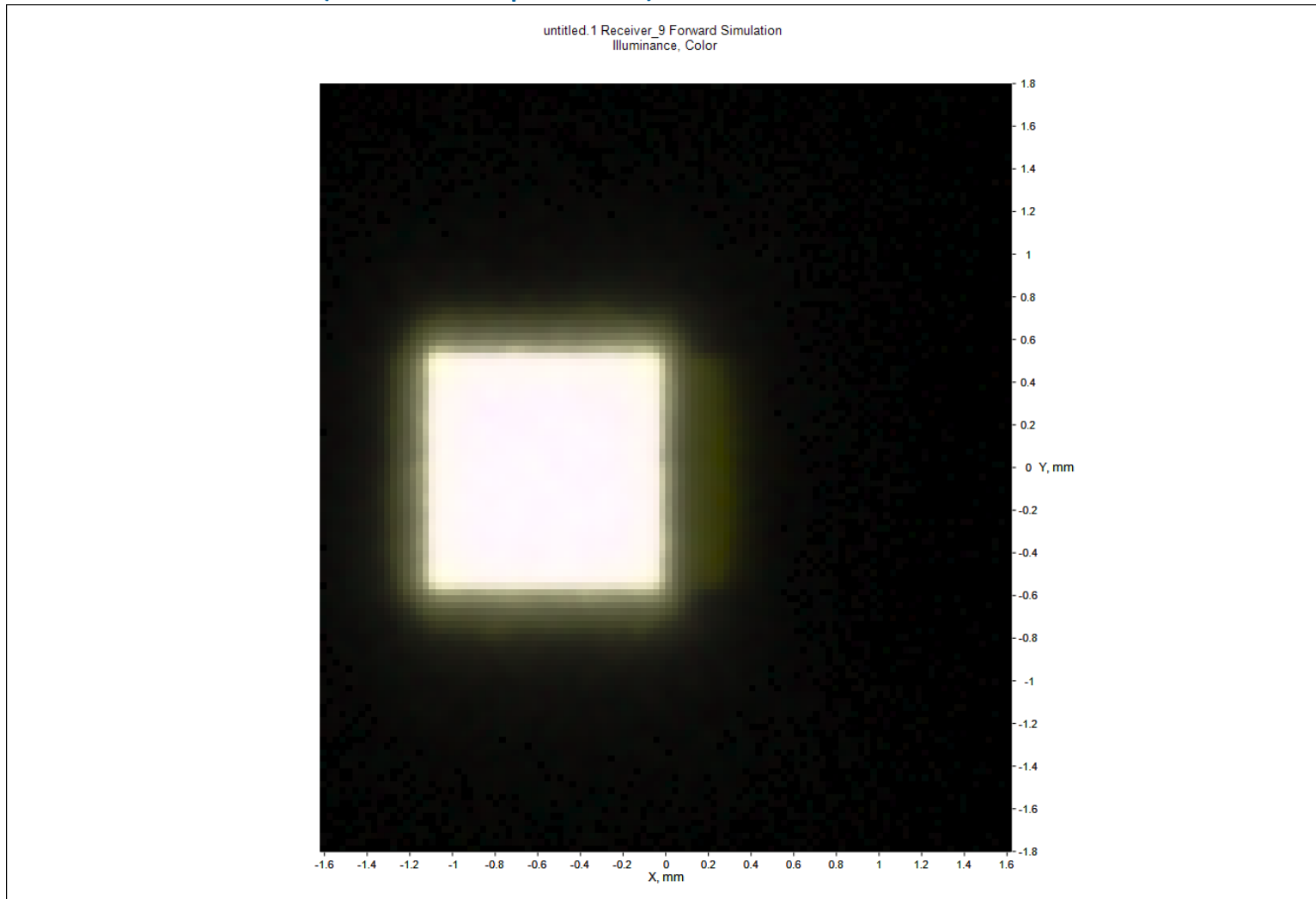
## LUXEON Altilon SMD DT - Cool White

3D CAD view + ray starting points



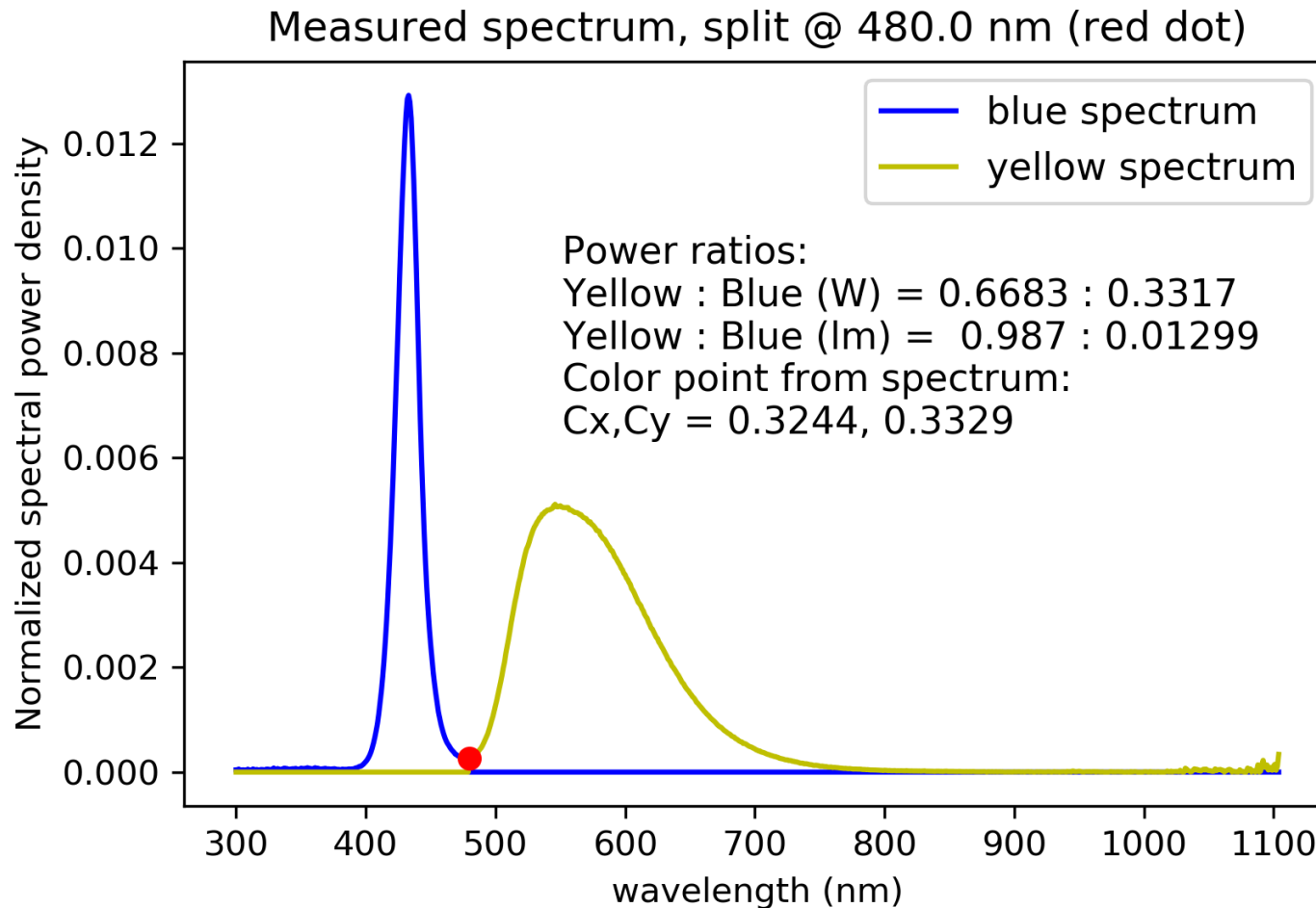
# LUXEON Altilon SMD DT - Cool White

## 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)<br>(from measured spectrum)    | 0.6683 : 0.3317 |
| yellow : blue ratio (lm)<br>(from measured spectrum)   | 0.987 : 0.01299 |
| Average color point Cx, Cy<br>(from measured spectrum) | 0.3244, 0.3329  |
| Average color point Cx, Cy<br>(from simulation)        | 0.3243, 0.3348  |
| Color point Cx, Cy @ HV<br>(from simulation)           | 0.3255, 0.335   |
| Average CCT (K)<br>(from simulation)                   | 5.881e+03       |

Lumileds ref.: 1040\_LUXEON Altilon SMD DT - Cool White\_20190228

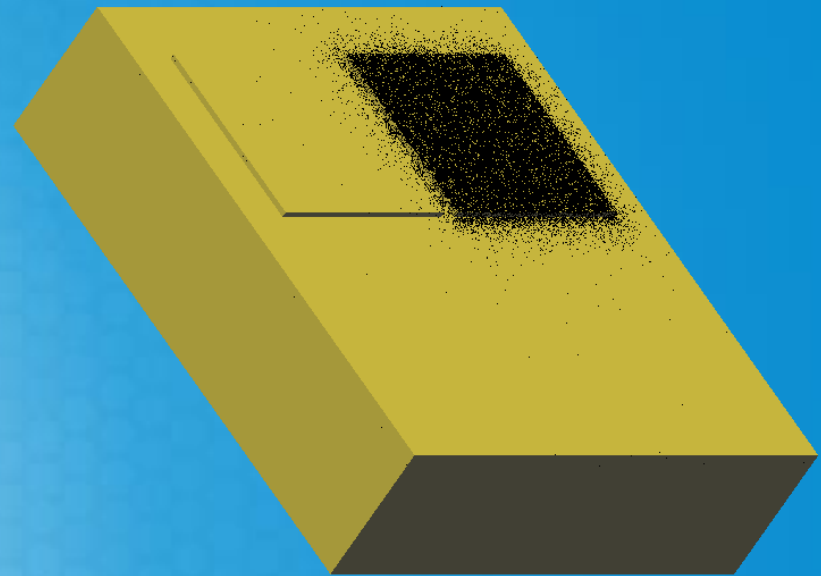


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# LUXEON Altilon SMD DT - PC Amber

## Optical Rayset Readme

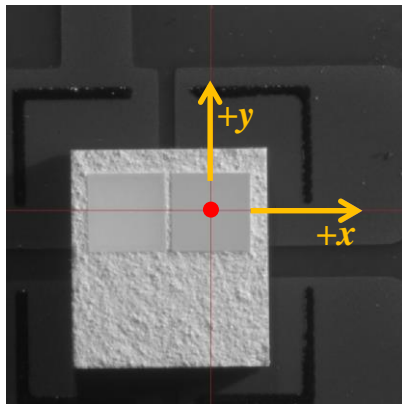
February 28th, 2019



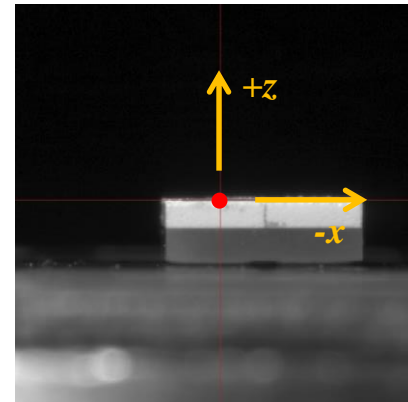
# LUXEON Altilon SMD DT - PC Amber

## Measurement Reference Location

Top view



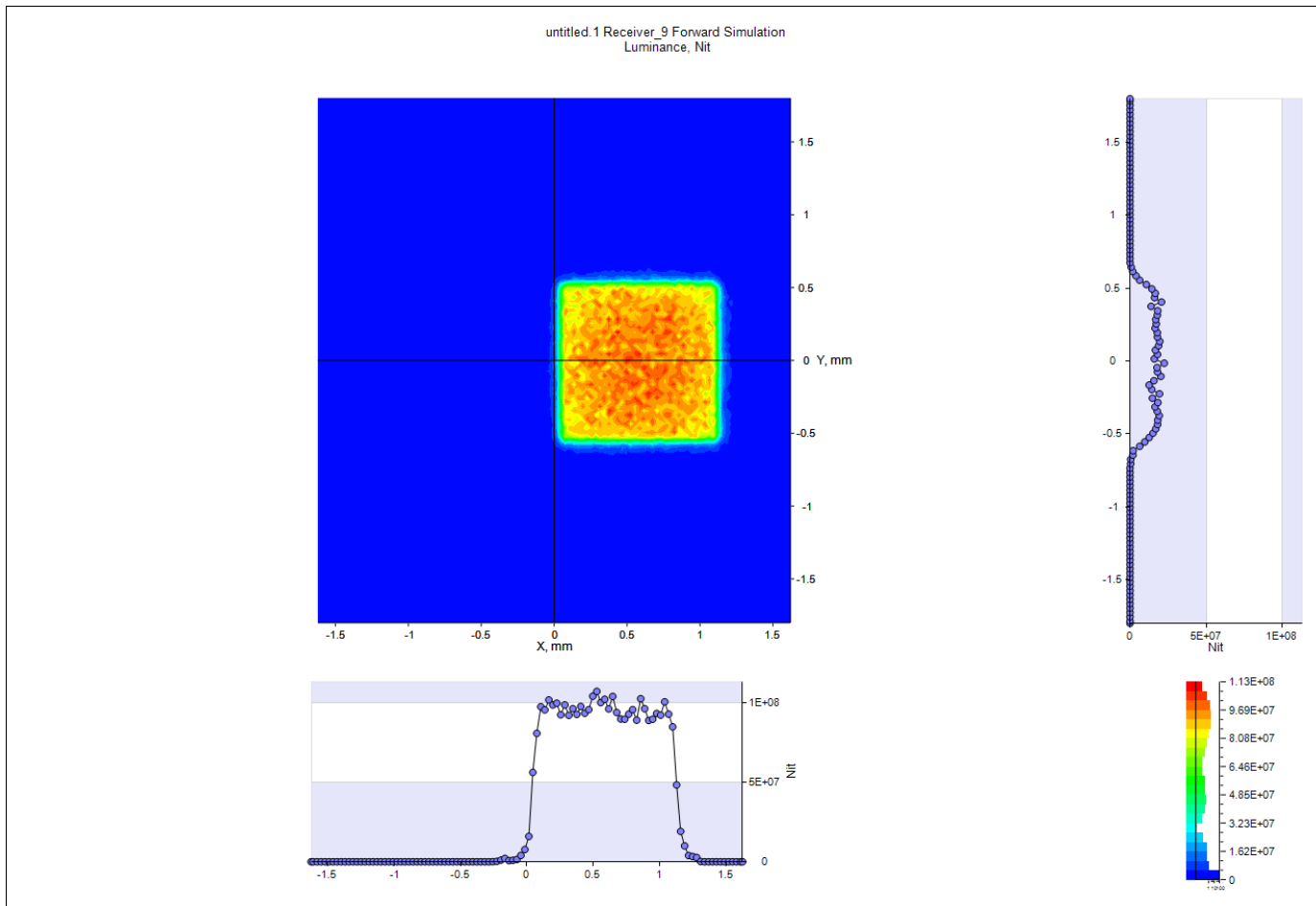
Side view



- Red dot indicates measurement origin
- xy centered on center of package
- z-axis referenced to top edge of package

# LUXEON Altilon SMD DT - PC Amber

## Source Size



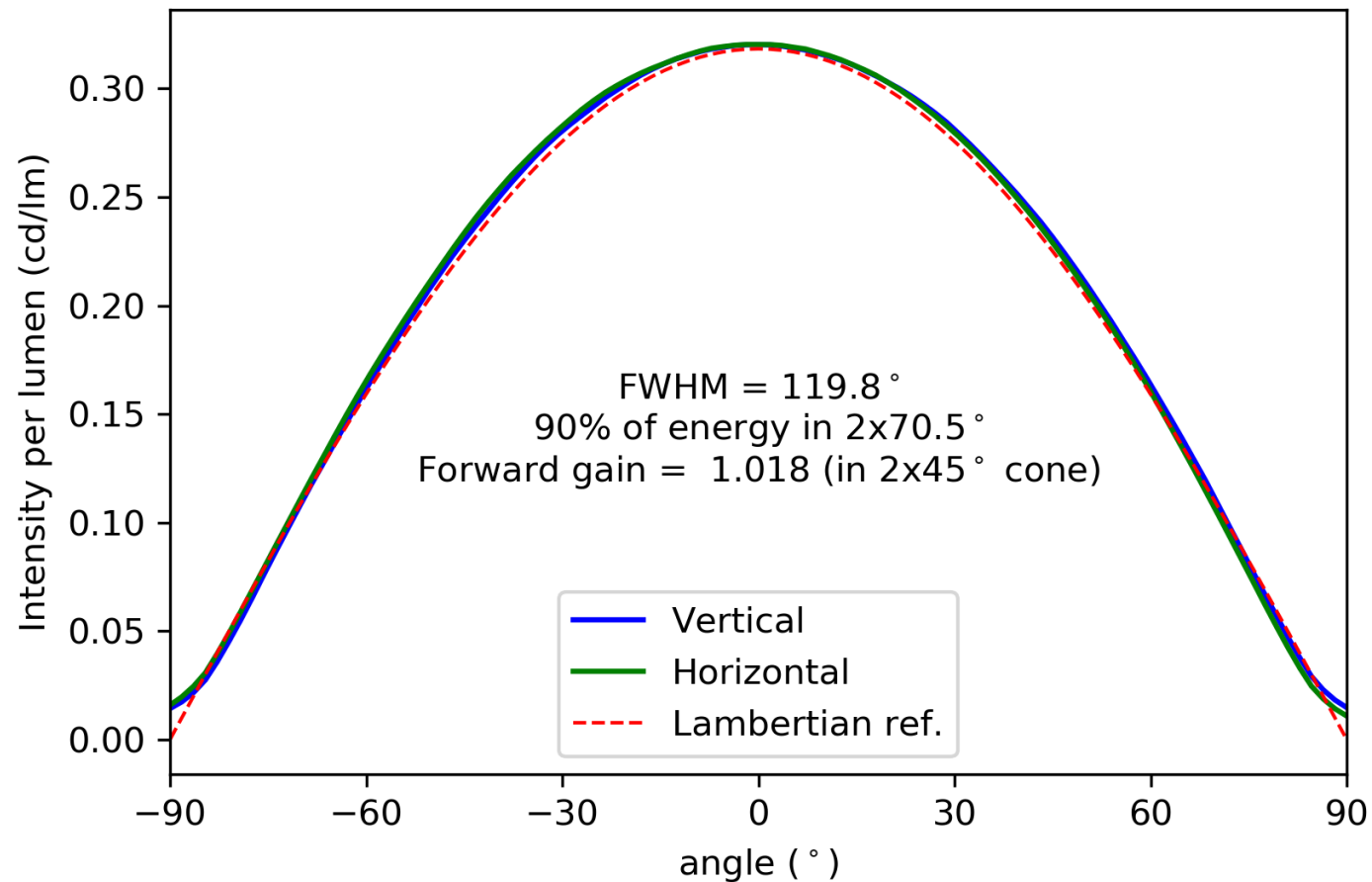
Source luminance (FWHM) =  $1.07 \times 1.07 \text{ mm}^2$



# LUXEON Altilon SMD DT - PC Amber

## 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

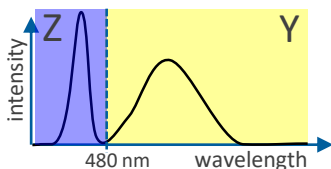
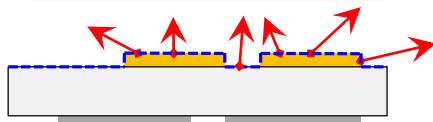
**Spectral Information**

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

**Target Software Package**

LightTools (LT), ASAP, Zemax, ...

**File Extension**



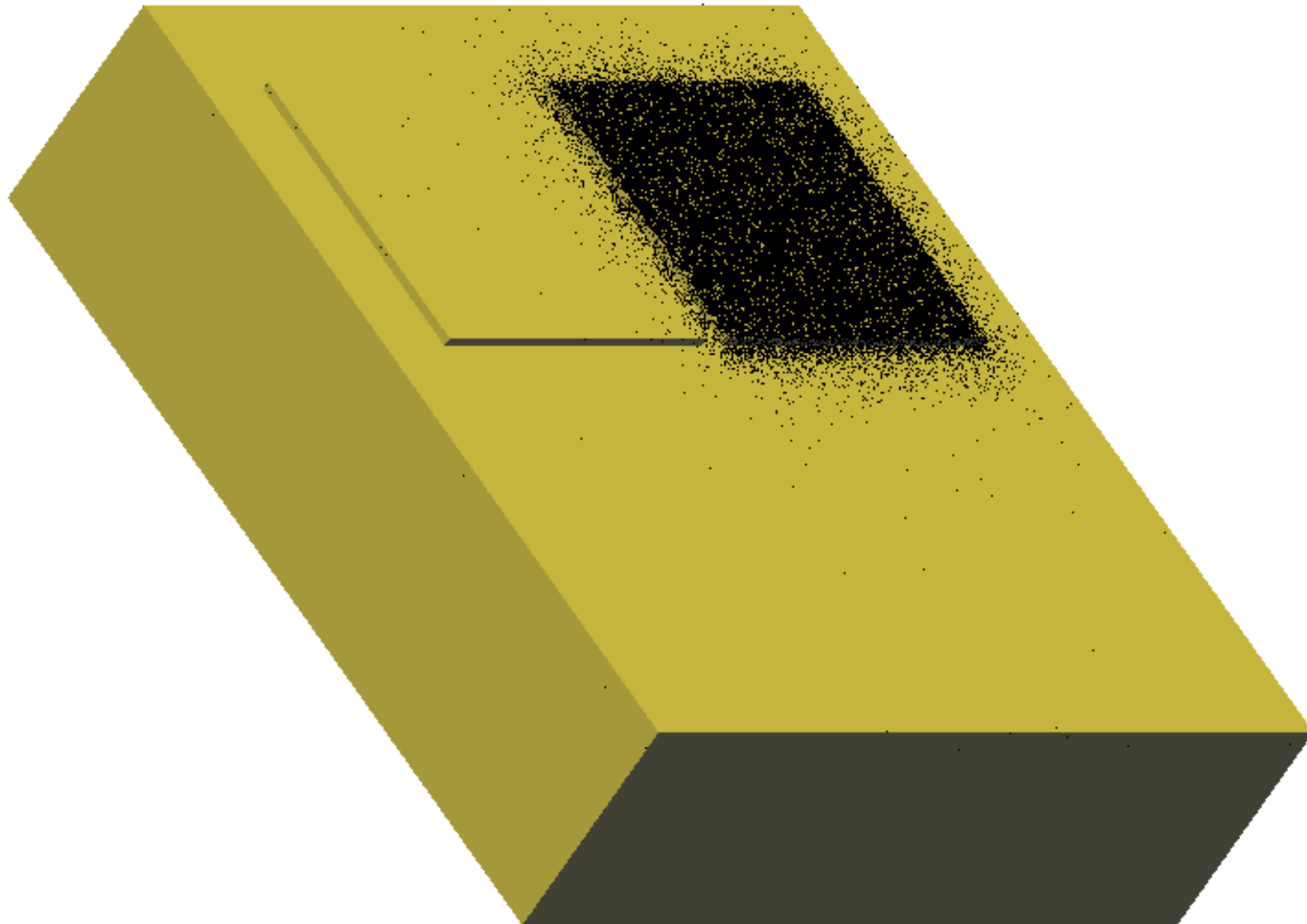
# LUXEON Altilon SMD DT - PC Amber

## Rayset Download Links

|                 |                                 |  |         |     |
|-----------------|---------------------------------|--|---------|-----|
| Prosource       |                                 | LUXEON_Altilon_DT_PCA_20190228_1041.rs8<br>Download link: <a href="https://www.sendspace.com/pro/dl/6967o0">https://www.sendspace.com/pro/dl/6967o0</a>                      | 174 MB  |     |
| LightTools      | Spectral Projected:             | LUXEON_Altilon_DT_PCA_20190228_20M_proj_spectral_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/aeaij3">https://www.sendspace.com/pro/dl/aeaij3</a>      | 1.19 GB | 20M |
|                 | Y-Component Projected:          | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Y_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/wunp4c">https://www.sendspace.com/pro/dl/wunp4c</a>             | 534 MB  | 20M |
|                 | Z-Component Projected:          | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Z_LT.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/abj7vy">https://www.sendspace.com/pro/dl/abj7vy</a>             | 534 MB  | 20M |
| ASAP/LucidShape | Y-Component Projected:          | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Y_ASAP.dis<br>Download link: <a href="https://www.sendspace.com/pro/dl/1vcy84">https://www.sendspace.com/pro/dl/1vcy84</a>           | 534 MB  | 20M |
|                 | Z-Component Projected:          | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Z_ASAP.dis<br>Download link: <a href="https://www.sendspace.com/pro/dl/0uvix1">https://www.sendspace.com/pro/dl/0uvix1</a>           | 534 MB  | 20M |
| OPTIS SPEOS     | Y-Component Spectral Projected: | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Y_spectral_Speos.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/sfh23o">https://www.sendspace.com/pro/dl/sfh23o</a> | 610 MB  | 20M |
|                 | Z-Component Spectral Projected: | LUXEON_Altilon_DT_PCA_20190228_20M_proj_Z_spectral_Speos.ray<br>Download link: <a href="https://www.sendspace.com/pro/dl/5gul7j">https://www.sendspace.com/pro/dl/5gul7j</a> | 610 MB  | 20M |
| Zemax           | Spectral Projected:             | LUXEON_Altilon_DT_PCA_20190228_20M_proj_spectral_zemax.dat<br>Download link: <a href="https://www.sendspace.com/pro/dl/2onfwk">https://www.sendspace.com/pro/dl/2onfwk</a>   | 1.19 GB | 20M |
| Far Field       | ies:                            | LUXEON_Altilon_DT_PCA_20190228_20M.ies<br>Download link: <a href="https://www.sendspace.com/pro/dl/x9uls9">https://www.sendspace.com/pro/dl/x9uls9</a>                       | 628 kB  |     |
| Spectrum        |                                 | LUXEON_Altilon_DT_PCA_20190228_spectrum.txt<br>Download link: <a href="https://www.sendspace.com/pro/dl/wruak8">https://www.sendspace.com/pro/dl/wruak8</a>                  | 16.6 kB |     |
| CAD             | STEP:                           | LUXEON_Altilon_DT_20190228_geometry.STEP<br>Download link: <a href="https://www.sendspace.com/pro/dl/a6vrac">https://www.sendspace.com/pro/dl/a6vrac</a>                     | 121 kB  |     |
|                 | IGES:                           | LUXEON_Altilon_DT_20190228_geometry.IGS<br>Download link: <a href="https://www.sendspace.com/pro/dl/nbwfcl">https://www.sendspace.com/pro/dl/nbwfcl</a>                      | 253 kB  |     |

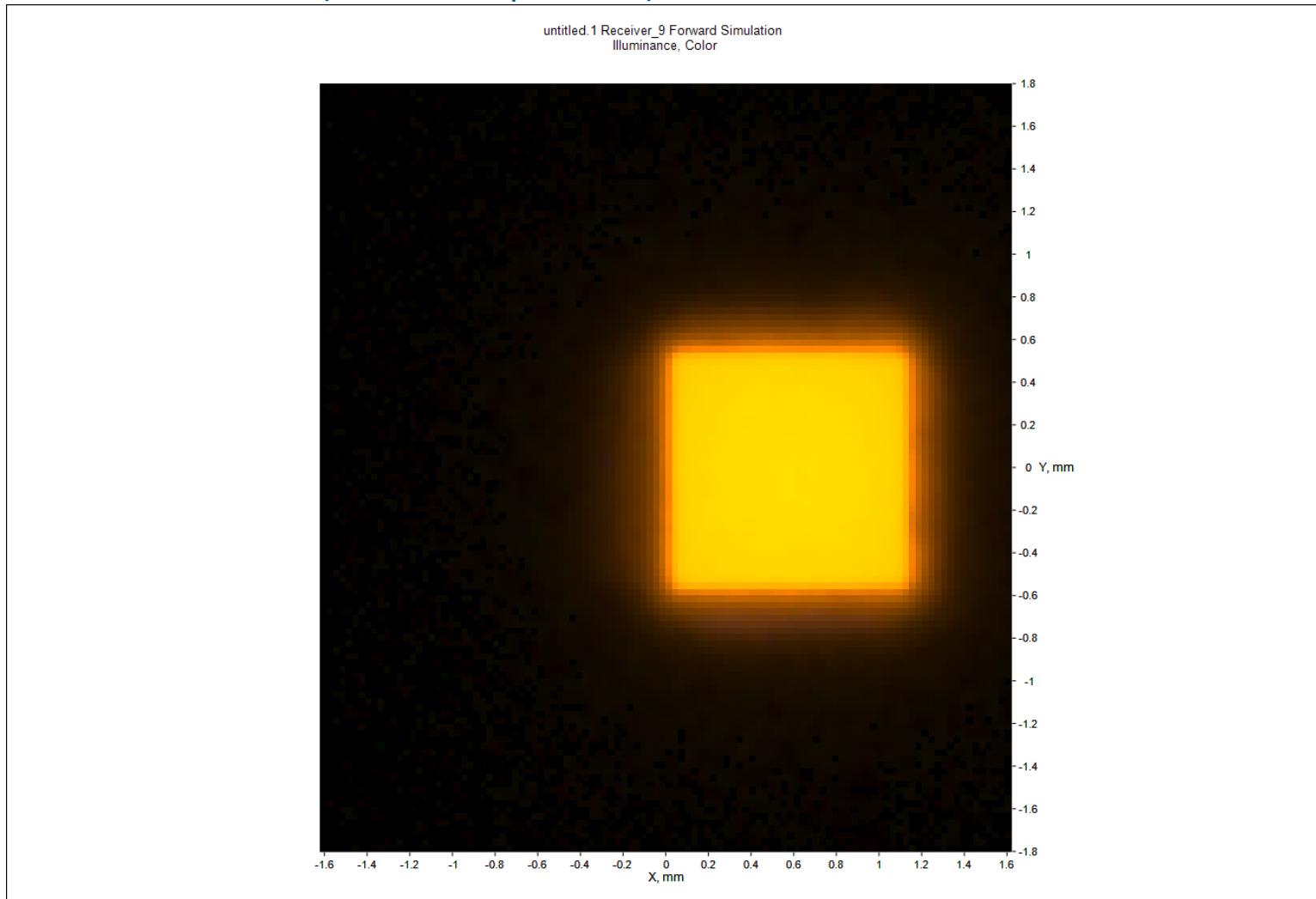
## LUXEON Altilon SMD DT - PC Amber

3D CAD view + ray starting points



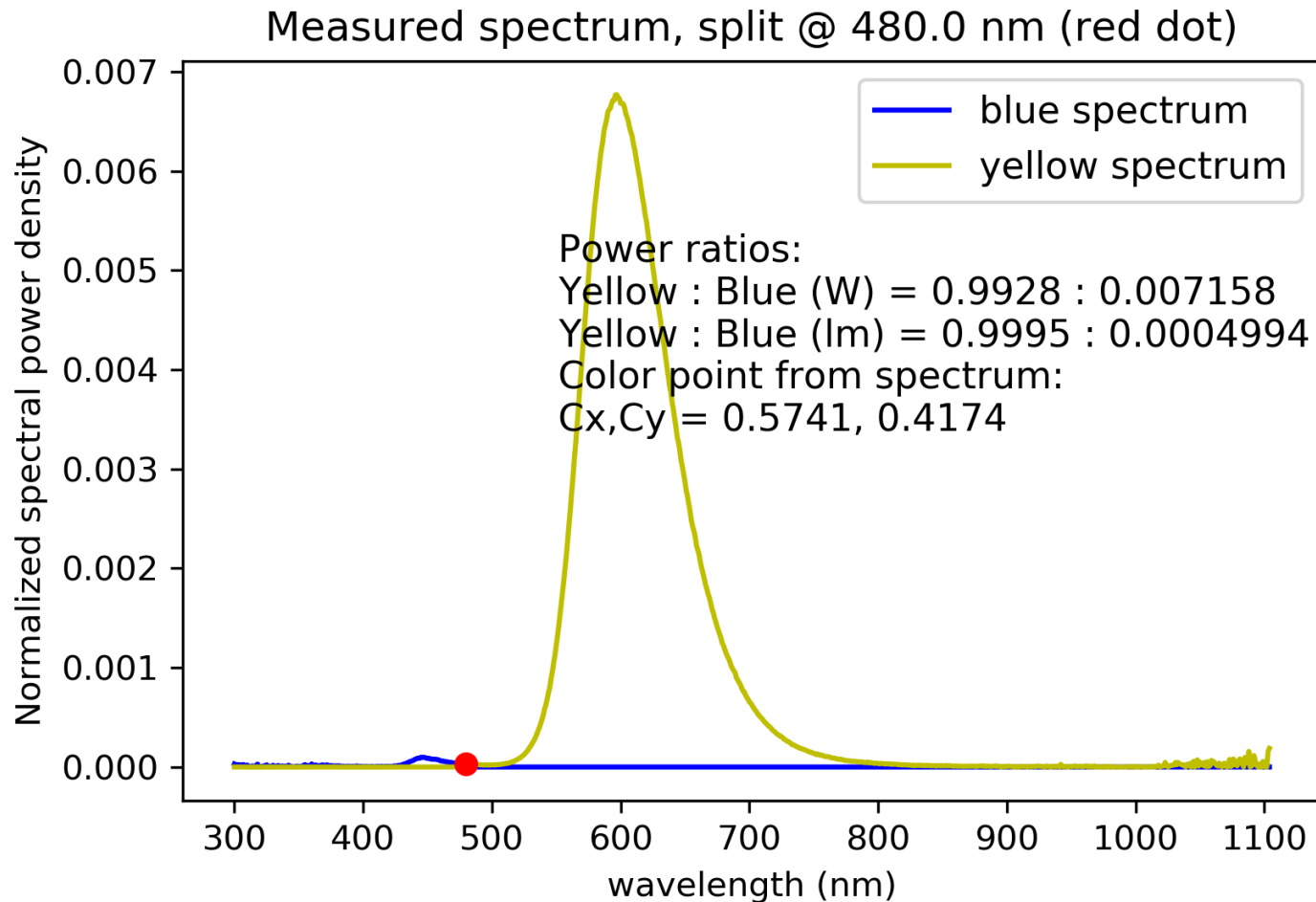
# LUXEON Altilon SMD DT - PC Amber

## 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)<br>(from measured spectrum)    | 0.9928 : 0.007158  |
| yellow : blue ratio (lm)<br>(from measured spectrum)   | 0.9995 : 0.0004994 |
| Average color point Cx, Cy<br>(from measured spectrum) | 0.5741, 0.4174     |
| Average color point Cx, Cy<br>(from simulation)        | 0.5728, 0.4187     |
| Color point Cx, Cy @ HV<br>(from simulation)           | 0.5727, 0.4179     |
| Average CCT (K)<br>(from simulation)                   | 1.703e+03          |

Lumileds ref.: 1041\_LUXEON Altilon SMD DT - PC Amber\_20190228



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