

# RPC Photonics, Inc.

## BSDF DLL Files for Zemax

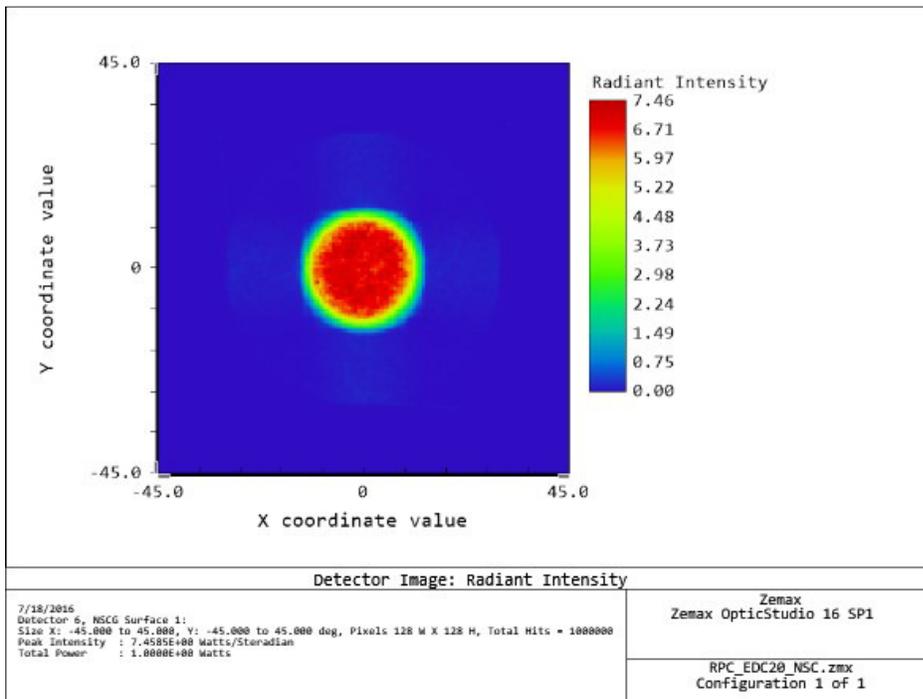
The enclosed BSDF DLL routine and .bin files contain scatter data for various sample rotations and angles of incidence. The BSDF data formatting does not assume rotational symmetry for the scattered light.

The files are named with the diffuser type, for example, the file *EDC20-09211z\_BSDF\_DLL.zip* contains the DLL and data for the EDC20 diffuser with a single sample rotation of 0 degrees and angles of incidence at 0, 5, 10, 15, and 20 degrees. For the non-symmetric or anisotropic diffusers such as the EDS20 and EDS50, BSDF data was taken for multiple sample rotations and angles of incidence

The BSDF data provided are from measurements, made at RPC Photonics, Inc., of representative diffuser samples. Actual scatter distributions may vary from diffuser to diffuser.

### Isotropic Diffusers

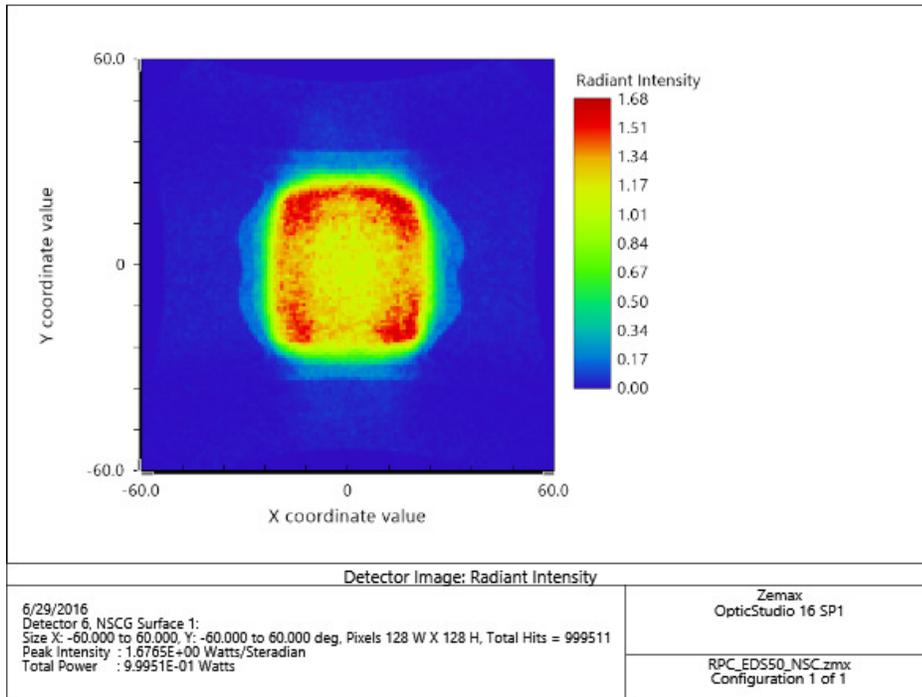
Isotropic diffusers with symmetric or isotropic data, such as the circular diffusers EDC20 and EDC50, need data only for various angles of incidence.





## Anisotropic Diffusers

For the non-symmetric or anisotropic diffusers such as the EDS20 and EDS50 we require many more BSDF measurements to cover multiple Sample Rotation angles. So for each EDS diffuser we have measurement data for 25 Sample Rotations in increments of 15 degrees and 5 Angles of Incidence between 0 and 20 degrees.



An example .zmx file and ReadMe instructions are included with each BSDF DLL and data set.

### Note to Zemax and OpticStudio users:

The maximum ray incidence angle (AOI) employed in the BSDF measurements of the Engineered Diffuser is 20°. If the user configures a source and scatterer such that the maximum AOI is exceeded for some input rays, those rays that exceed the maximum AOI will trace unscattered through the diffuser. This should result in a radiant intensity map with a fairly obvious very high peak intensity for those unscattered rays, and low intensity for the scattered rays. This is the only indication presented to the user of an invalid result due to an optical configuration exceeding the maximum AOI.

The BSDF DLL routines and .bin files for Zemax have been tested with Zemax OpticsStudio16 SP1 Professional (64-bit) Version June 08, 2016.