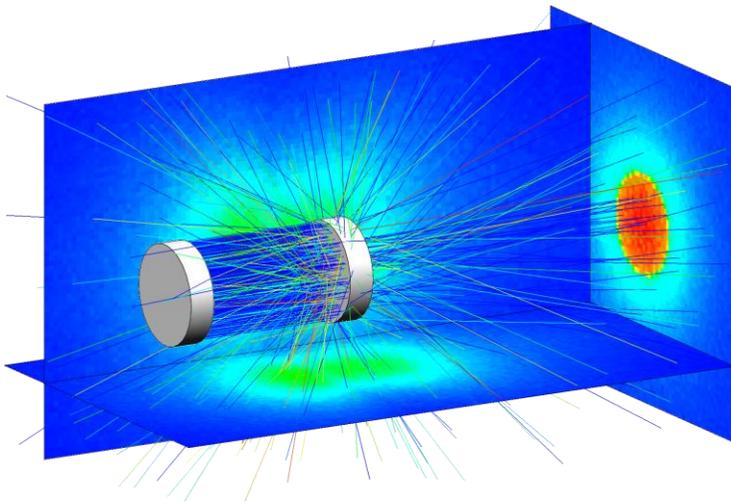


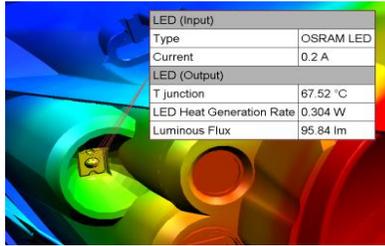
Simcenter FLOEFD

What's New 2021.1

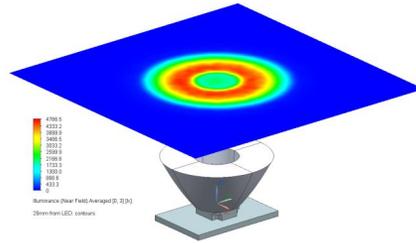
4. Optics & Lighting



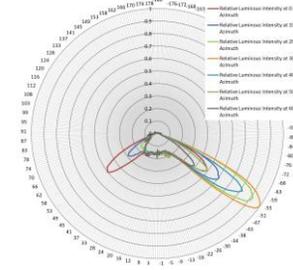
Lighting, optics, and radiation in one glance



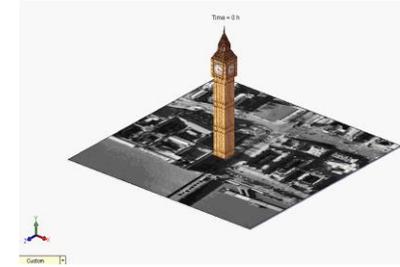
LED Electro-Thermal-Optical model



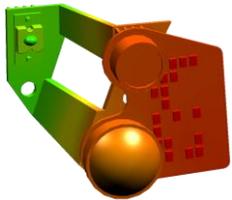
Near Field Illuminance



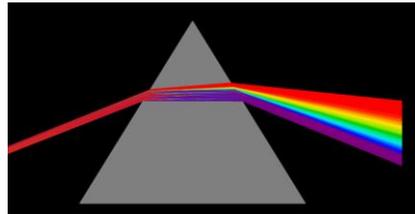
Far Field Intensity



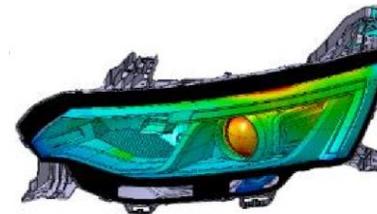
Solar Radiation



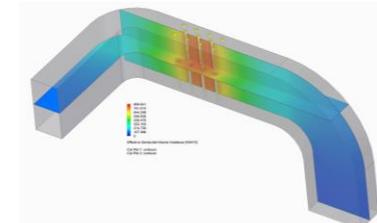
Lidar Thermal-Optical Analysis



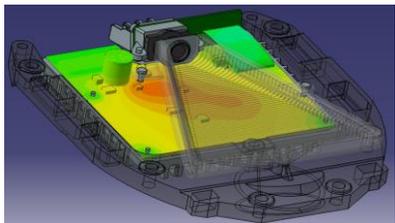
Optics



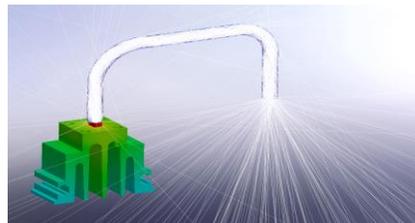
Lamps, Lights, Bulbs



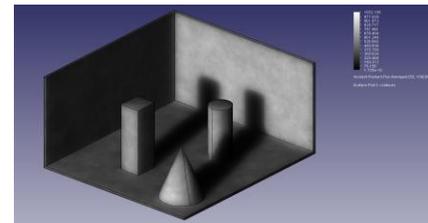
Ultra Violet Germicidal Irradiation



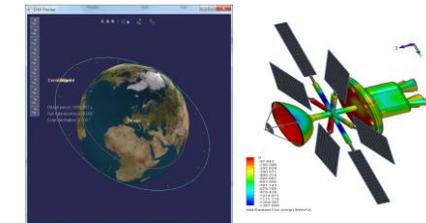
Camera Thermal and Fog Simulation



Light Guides



Light Distribution

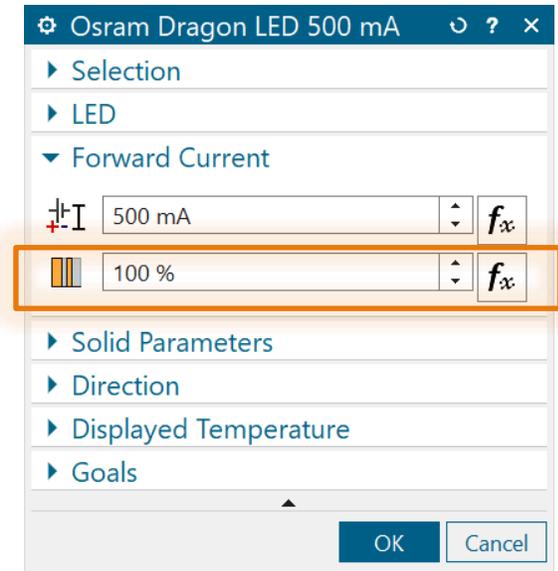
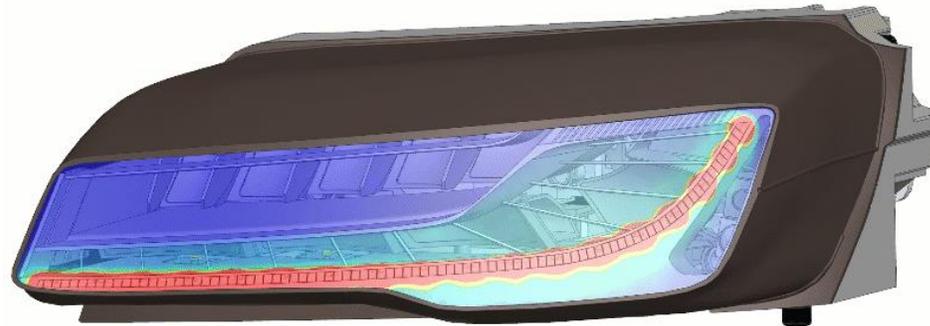
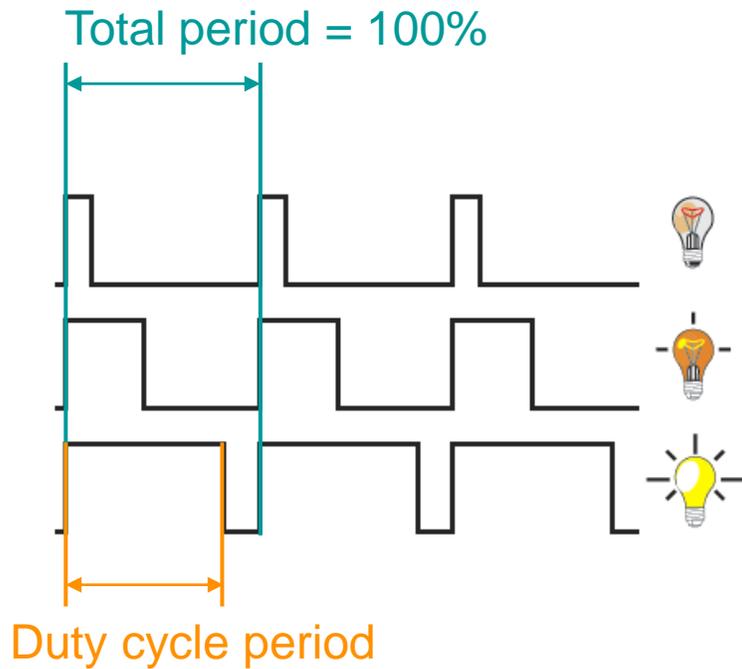


On-Orbit Radiation

LED: Pulse width modulation and forward current goal

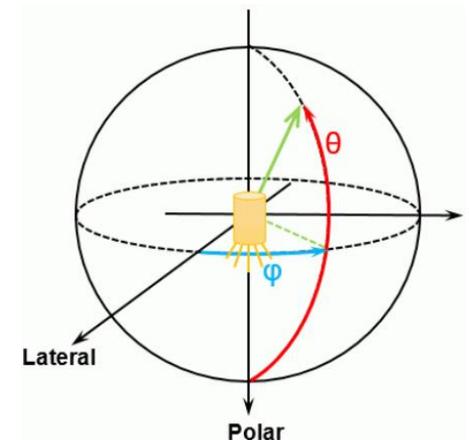
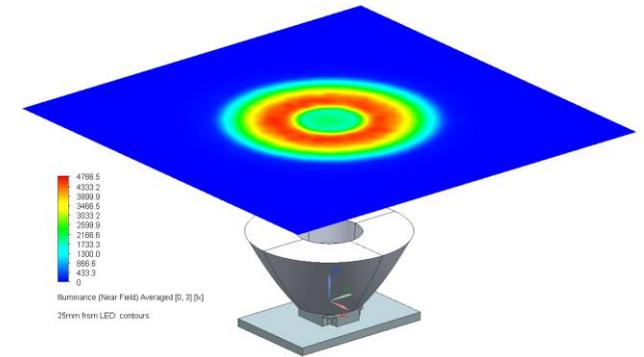
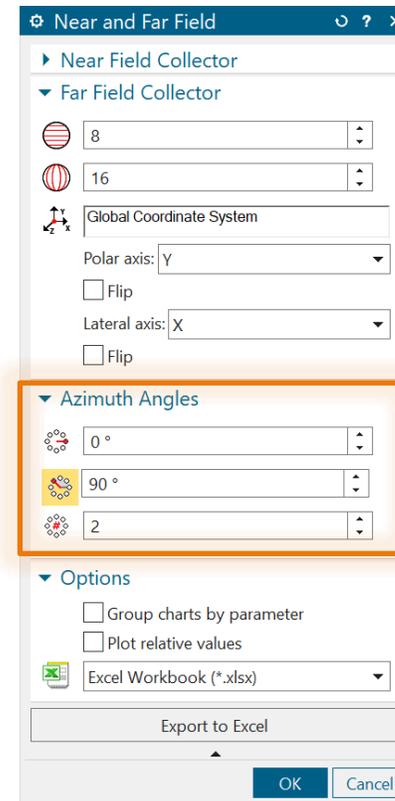
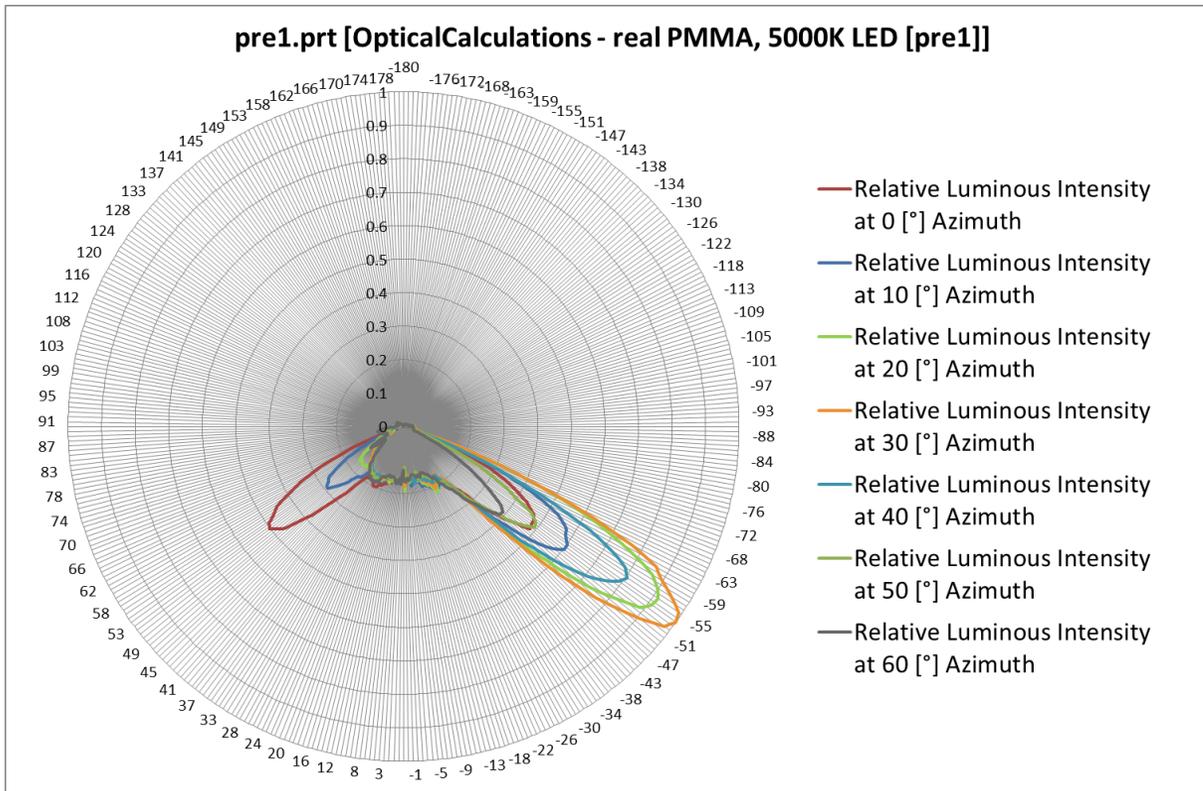
Pulse-width modulation can be modeled for thermal-electrical-optical LEDs. Pulse-width modulation is widely used in lighting to control the brightness of LEDs. You can set the duty cycle in percentage.

You can now set Forward Current as a LED specific goal to use the driving current as a parameter for other equation goals.



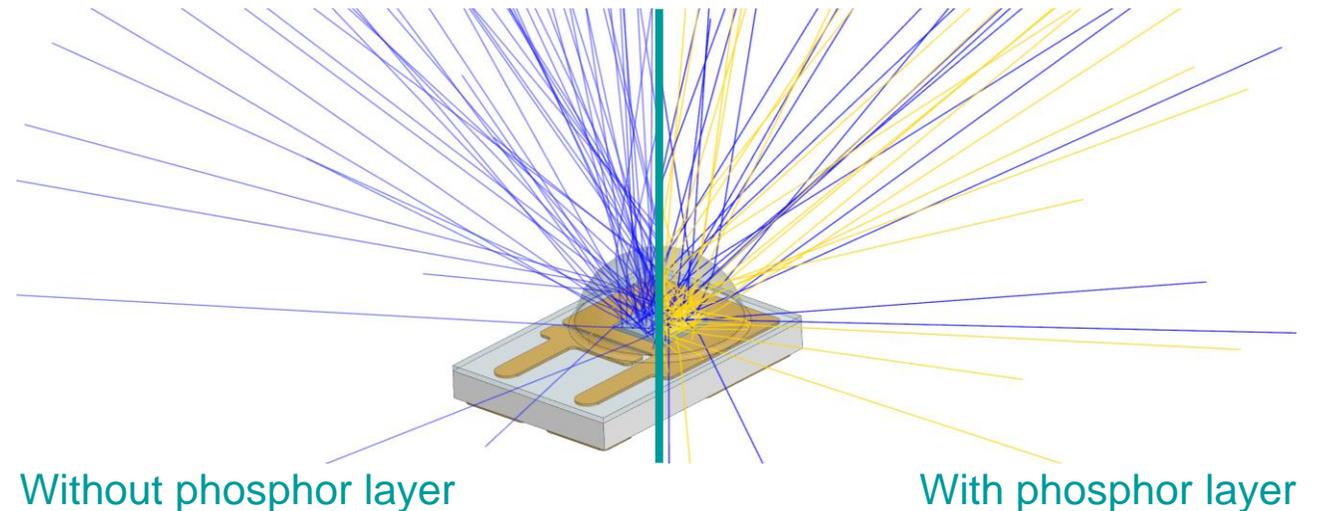
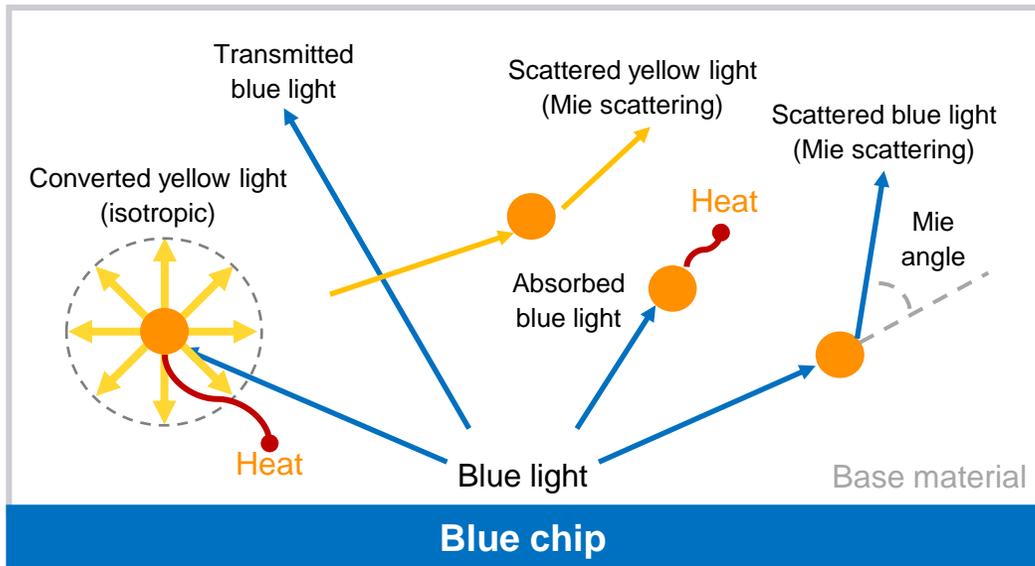
Far-Field plot: Multiple angle output and candela unit.

Relative or absolute luminous intensity values can now be plotted for many user-defined Azimuth (φ) angles. The candela ($\text{cd} = \text{lumen per steradian}$, luminous flux per unit solid angle) unit is added for the luminous intensity.



Phosphor Particles

Photoluminescence and Scattering (Mie scattering theory is used) of phosphor particles can now be simulated. Phosphor particles are often used to manufacture white LEDs, as they allow the conversion of blue light to yellow light. Photoluminescence is the process during which light of a specific spectral range is absorbed by a material and is then re-emitted with a different spectral range of longer wavelengths. Temperature dependency of the luminous efficiency is taken into account.



Phosphor Particles: Temperature Dependence

Luminous Efficiency is an optional parameter, which accounts for the temperature and excitation wavelength dependency. This parameter modifies the conversion efficiency of the excitation spectrum according to the actual solid material temperature and wavelength of incident light.

