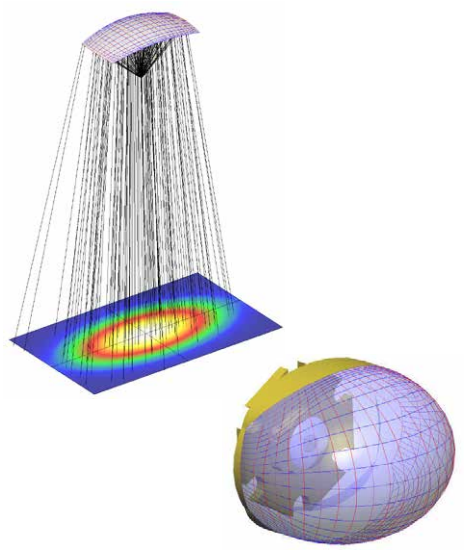
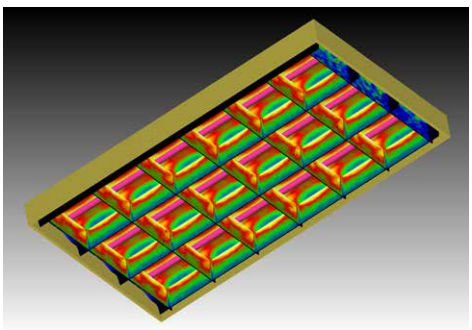
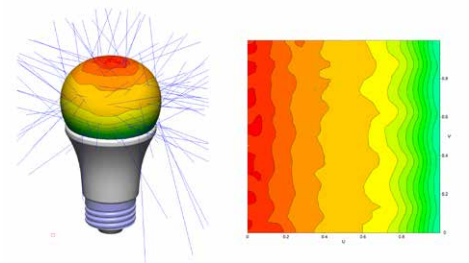
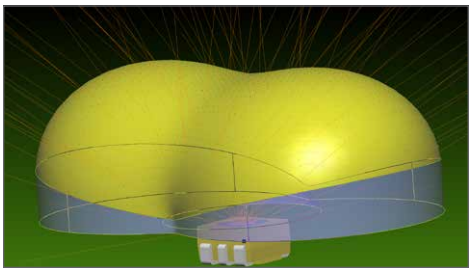
# LightTools

## Features and Benefits for General Lighting Design









LightTools® software is a proven tool to help lighting designers create reliable, high-performance illumination systems. LightTools delivers ease of use, fast and flexible ray tracing, a fully featured optical and mechanical design environment and expert technical support. Moreover, with LightTools, your design results are right the first time, which allows you to finish projects faster and save product development costs.

## Increase Engineering Productivity

| Benefit | Description |
|---|---|
| Reach the best design solution faster | • Optimization that delivers the best design solution automatically. Full software integration and built-in merit functions minimize setup and execution time<br>• Backward and hybrid simulations modes can often dramatically reduce ray trace times, speeding up the design process. |
| Fast and flexible preliminary design studies | • Point-and-shoot ray tracing gives you real-time, detailed feedback on your system's light behavior during design iterations |
| Rapid model creation | • Sophisticated solid modeling with full optical accuracy<br>• State-of-the-art ray tracing speed, with full user control of accuracy and resolution<br>• Ability to create a light source from any geometric object for custom source models<br>• LED utility to quickly build a complete model<br>• Extensive source and materials libraries, including LEDs and BSDF measurements<br>• Robust data exchange support for mechanical CAD data<br>• Interactive, dynamic link with SOLIDWORKS®<br>• Multiple immersion for modeling the embedded phosphor in an encapsulated LED<br>• Fully optimizable skinned solids for creating efficient LED couplers<br>• User-defined materials to model phosphor-based white LEDs<br>• Textures—2D, 3D and user defined—with flexibility to vary the shape, size and spacing of texture elements<br>• Color rendering index (CRI) calculations on any receiver<br>• Intensity data collection that enables data exchange with other lighting design software through the IES and LDT data formats |
| Automate routine design tasks | • A powerful COM interface to LightTools data and commands to automate design tasks using .Net or Visual Basic<br>• Supplied utilities that target specific design needs, forms and applications |
| Accurately model material and surface optical properties | • Model surface properties using flexible built-in scattering surface properties, or directly from measured data<br>• Utilize an extensive library of commercially available materials and surface properties |

## Reduce Hardware Prototypes and Simulations

| Benefit | Description |
|---|---|
| Rapid design visualization and assessment | • Fast photorealistic rendering capability for modeling lit appearance<br>• Receiver filters for analysis<br>• Interactive re-binning of illumination data, receiver size and location, any time during a simulation<br>• "On the fly" adjustments to the illumination meter angle<br>• Low-discrepancy Sobol random number generator, for faster convergence<br>• IES-standard flood, roadway and interior lighting reports<br>• Ray path visualization to identify system elements contributing to light loss, scatter, unintentional reflections or ghost images<br>• Backward ray tracing for illuminance, intensity and spatial and angular luminance calculations delivers rapid, high-accuracy simulation results<br>• Smart output smoothing eliminates statistical noise and provides fast, accurate graphical output for any illumination analysis |

## Maximize Performance Within Cost and Tolerancing Constraints

| Benefit | Description |
|---|---|
| Get accurate predictions of as-built performance | • Virtual prototypes that accurately represent as-built optics<br>• Comprehensive, accurate color analysis<br>• Tolerancing sensitivity analysis using the Parametric Sensitivity feature |

## Support for All Design Needs

| Benefit | Description |
|---|---|
| More software support choices | • Rapid response to any software question by expert optical engineers with more than 40 years of hands-on design experience<br>• 24/7 access to a dedicated customer website with video demos, example models, usage tips and more<br>• Comprehensive documentation and examples-based tutorials<br>• Intro, advanced and custom training courses |
| Flexible subscription terms | • Short- or long-term subscription options, all with full tech support at no extra cost |

With its superior features and support, LightTools will help you get better illumination products to market faster—but don't just take our word for it. Let us show you with a personalized demo. If you're as impressed as we think you'll be, we can promptly set you up with a 30-day trial license.

**For more information, please contact Synopsys' Optical Solutions Group at (626) 795-9101, between 8:00 a.m. - 5:00 p.m. PST, visit synopsys.com/optical-solutions/lighttools or send an email to optics@synopsys.com.**

SYNOPSYS®
Silicon to Software™


03/05/18.CS12487_features-benefits-general-lighting-design.indd.