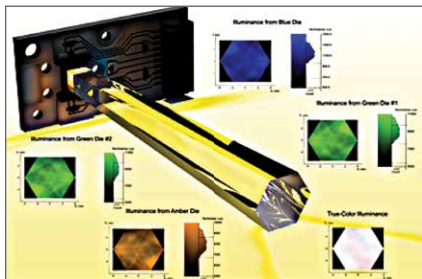
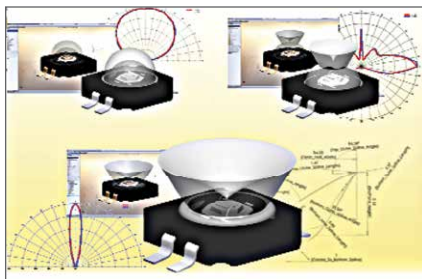
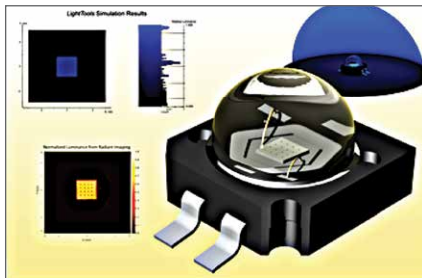
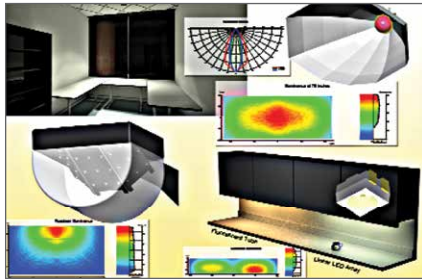


# LightTools

## Features and Benefits for LED Design



LED lighting designers have discovered that LightTools software is a proven tool to help them design reliable, high-performance LED 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.

Here are just a few examples of the benefits LightTools has to offer.

### Increase Engineering Productivity

| Benefit                                      | Description  |
|--|--|
| Reach the best design solution faster        | <ul style="list-style-type: none"> <li>• Optimization that delivers the best design solution automatically. Full software integration and built-in merit functions minimize setup and execution time</li> </ul>  |
| Fast and flexible preliminary design studies | <ul style="list-style-type: none"> <li>• Point-and-shoot ray tracing gives you real-time, detailed feedback on your system's light behavior during design iterations</li> </ul>  |
| Rapid model creation                         | <ul style="list-style-type: none"> <li>• Sophisticated solid modeling with full optical accuracy</li> <li>• State-of-the-art ray tracing speed, with full user control of accuracy and resolution requirements</li> <li>• LED utility to quickly build a complete model</li> <li>• Extensive LED source and materials libraries</li> <li>• Robust support of mechanical CAD data import</li> <li>• Interactive, dynamic link with SolidWorks</li> <li>• Multiple immersion for modeling the embedded phosphor in an encapsulated LED</li> <li>• Fully optimizable skinned solids for creating efficient LED couplers</li> <li>• User-defined materials to model phosphor-based white LEDs</li> </ul> |
| Automate routine design tasks                | <ul style="list-style-type: none"> <li>• A powerful COM interface to LightTools data and commands that allows you to automate design tasks using .Net or Visual Basic</li> </ul>   |

## Reduce Hardware Prototypes and Simulation

| Benefit                                   | Description  |
|---|--|
| Rapid design visualization and assessment | <ul style="list-style-type: none"><li>• Fastest photorealistic rendering capability for modeling lit appearance</li><li>• Receiver filters for analysis</li><li>• Interactive re-binning of illumination data, receiver size and location, any time during a simulation</li><li>• "On the fly" adjustments to the illumination meter angle</li><li>• Low-discrepancy Sobol random number generator, for faster convergence</li></ul> |

## Maximize Performance Within Cost and Tolerancing Constraints

| Benefit  | Description  |
|--|--|
| Get accurate predictions of as-built performance | <ul style="list-style-type: none"><li>• Virtual prototypes that accurately represent as-built optics</li><li>• Comprehensive, accurate color analysis, ranging from the color of physical bodies and the color of light propagating through the system to the calculation of color metrics at receivers</li><li>• Parameter study feature for tolerancing sensitivity analysis</li></ul> |

## Support for All Design Needs

| Benefit                       | Description  |
|-------------------------------|--|
| More software support choices | <ul style="list-style-type: none"><li>• Rapid response to any software question by expert optical engineers with more than 40 years of hands-on design experience</li><li>• 24/7 access to a dedicated customer website with video demos, example models, usage tips, and more</li><li>• Comprehensive documentation and examples-based tutorials</li><li>• Intro, advanced, and custom training courses</li></ul> |
| Flexible subscription terms   | <ul style="list-style-type: none"><li>• Short or long-term subscription options, all with full tech support at no extra cost</li></ul>   |

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 or to start your free 30-day evaluation, please contact Synopsys' Optical Solutions Group at (626) 795-9101, visit [synopsys.com/optical-solutions/lighttools](http://synopsys.com/optical-solutions/lighttools) or send an email to [optics@synopsys.com](mailto:optics@synopsys.com).