

Latest Release of Synopsys' LightTools Delivers Advanced Features for Illumination Design

LightTools 8.2 Now Generally Available

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Highlights:

- Support for 3D textures on curved surfaces facilitates the design of complex lighting systems
- The Unified Glare Rating utility optimizes luminaires to automatically reduce glare in a room environment
- Polarization analysis enhancements speed simulation of digital projector and backlit display designs

Synopsys, Inc. (Nasdaq: SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced the availability of version 8.2 of its LightTools® illumination design software, which delivers advanced modeling and analysis features for illumination design. These features provide optical design engineers with new options for modeling and optimizing complex lighting systems with even greater control, speed and flexibility.

"Synopsys' LightTools 8.2 includes robust new features that extend the software's support for the design of complex illumination systems," said George Bayz, vice president and general manager of Synopsys' Optical Solutions Group. "For example, by supporting 3D textures on curved surfaces, LightTools provides illumination designers with a powerful, intuitive tool to maximize light extraction and control the scattering of light in a wide range of applications, including complex light pipes, non-planar backlights and surfaces designed to control the illumination pattern in general lighting designs."

3D Textures on Curved Surfaces

LightTools 3D textures, which allow designers to model patterns of repeating structures on an optical surface, can now be applied to curved surfaces in LightTools. This feature provides a high degree of control, speed and flexibility to enhance a lighting system's intensity and distribution. For example, the number of structures on a surface can include millions of elements with minimal impact on LightTools' speed and performance. In addition, elements are available in many predefined, industry-standard shapes, but designers can also define custom shapes to meet special performance and manufacturing requirements. This feature is particularly useful for the design of complex curved surfaces used in automotive lighting, light pipes, backlit displays, optics for luminaires, and LED coupler optics.

"With the capability for placing micro-lenses on curved surfaces in LightTools, our designers are able to directly optimize lighting designs without having to repeatedly interact with a separate mechanical 3D model," said Wu Jiang, director of optics at LedEngin, Inc. "This is a much more convenient, efficient design process. Having the ability to place micro-structures on curved surfaces is also essential for achieving a desired color quality, which is increasingly important for the general lighting market."

Unified Glare Rating Utility

Unified Glare Rating (UGR) indicates the approximate glare of lamps for a given observer location and arrangement of luminaires in a rectangular room. The Unified Glare Rating utility now provided with LightTools calculates the UGR and allows designers to optimize their luminaires to automatically improve the glare rating. The utility uses standard conditions as defined in CIE 190:2010, the latest specification provided by the International Commission on Illumination.

Polarization Analysis Enhancements

LightTools version 8.2 includes enhancements that make the analysis of polarized light faster and easier. This is particularly useful for the analysis of digital projectors and backlit displays.

- Designers can now include polarization data when exporting receiver ray data. This allows ray data files to replicate sources with significant polarization characteristics, which saves simulation time, and also allows designers to share source performance data without exposing details of the source construction.
- A new receiver filter has been added to allow designers to capture ray data pertaining to a linear polarizer. This eliminates the need to create an actual polarizing element in the model to explore the polarization state of the light at a receiver, saving time and allowing different polarization states to be analyzed without running repeated simulations.

Availability and Resources

LightTools version 8.2 is available now. Customers with a current maintenance agreement can download this version from the Synopsys website using their SolvNet® account.

About LightTools

LightTools is a 3D optical engineering and design software product that supports virtual prototyping, simulation, optimization and photorealistic renderings of illumination applications. For more information, visit <http://optics.synopsys.com/lighttools>.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, Synopsys delivers software, IP and services to help engineers address their design, verification, system and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at www.synopsys.com.

Editorial Contacts:

Tess Cahayag
Synopsys, Inc.
650-584-5446
maritess@synopsys.com

Lisa Gillette-Martin
MCA, Inc.
650-968-8900, ext.115
lgmartin@mcapr.com

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