Synopsys Releases LightTools 8.5 with New Tools to Increase Illumination Optical System Efficiency and Performance

MOUNTAIN VIEW, Calif., March 14, 2017 /PRNewswire/ -- **Highlights:**

- Conformal surface receivers to enhance and simplify illuminance analysis of complex optical surfaces
- Expanded illuminance visualization in 3D Design view
- Parameter Sensitivity Analyzer to quickly reach optimal design solutions
- Improved Freeform Designer to increase collection efficiency of point and extended light sources
- Enhanced Light Guide Designer to optimize light pipe output
- Expanded example model library to help designers quickly build and simulate illumination designs

Synopsys, Inc. (Nasdaq: SNPS) today announced the availability of version 8.5 of its LightTools® illumination design software for the modeling, analysis and optimization of illumination optics. Synopsys LightTools version 8.5 release offers powerful new features for the design, visualization and optimization of sophisticated optical components used in general lighting systems, freeform optics, light guides and backlit displays.

"The latest enhancements to LightTools software give designers additional options to create advanced illumination systems and use automated optimization and analysis tools to improve system performance and efficiency," said George Bayz, vice president and general manager of Synopsys' Optical Solutions Group. "For example, visualizing and reaching optimal design solutions is faster and more flexible with the new Conformal Surface Receivers, Parameter Sensitivity Analyzer and improved Freeform Designer and Light Guide Designer features."

Conformal Surface Receivers

LightTools 8.5 software introduces an expanded set of mapping options for surface receivers on non-planar surfaces, known collectively as conformal receivers. New in this version are spherical and UV mesh mapping options, which eliminate the need to project illuminance data collected on complex surfaces onto planar meshes, and which make interpretation and optimization much easier. Designers can vary the number of bins in the mesh or set the desired bin size and use the same filtering, analysis and optimization capabilities that exist for planar meshes. Conformal receivers can be particularly useful for analyzing complex elements such as freeform surfaces combined with LED sources.

Expanded Visualization of Illuminance Results

LightTools software displays a raster image of illuminance output in its 3D Design view so that designers can visualize the orientation and distribution of illuminance data relative to model geometry. This capability has been expanded to receivers on most surface types in LightTools software. In addition, the appearance of the illuminance data can be controlled by settings for color scheme, scaling, and linear and logarithmic settings, as well as contours, mesh lines, smoothing and lit effects.

Parameter Sensitivity Analyzer

The new Parameter Sensitivity Analyzer automates the process for analyzing the impact that system variables have on specified performance metrics, helping designers quickly reach an optimal design solution. Key features include support for multiple configurations, parameter lists for non-uniformly spaced variable states and non-numeric variables, and multiple chart views for detailed performance analysis. The tool also supports the ability to run scripts after variable values are changed or after each evaluation cycle is complete.

Improved Freeform Designer

The Freeform Designer assists with the design and optimization of freeform reflective and refractive optical surfaces based on an illuminance or intensity target distribution, source collection angle and distribution, as well as other geometry settings. A new conic lens option provides greater flexibility for surface definitions, including the ability to define a flat surface displaced from the source. The conic lens option is a powerful tool to increase the collection efficiency of point and extended light sources used in compact, energy-efficient illumination systems.

Enhanced Light Guide Designer

The design of light guides that are meant to emit light evenly along the length of the pipe can be a challenging design problem. The Light Guide Designer automates the design process, providing tools for constructing,

analyzing and optimizing light pipes and their extraction features to improve output. New profile shapes, geometry controls and analysis improvements enhance the tool's flexibility and ease of use, and provide more options for innovative shaping and improved efficiency.

Expanded Example Model Library

LightTools software includes an extensive collection of example models that helps designers quickly build and simulate illumination designs. The library has been expanded with new models to help users take immediate advantage of new capabilities in version 8.5, including:

- Conformal receiver example on the dome of an LED light bulb
- 3D illuminance visualization example on the baffles and back reflector of a luminaire
- Parameter sensitivity analysis example on a backlit display with LED edge sources; the analysis measures and optimizes luminance uniformity of the display while keeping LED source placement symmetric
- Example models that demonstrate how to use the Light Guide Designer to create a square cross-section light guide with optimized spatial luminance and angular pointing as well as a light guide with user-defined profile shape and optimized light direction targets

About LightTools

LightTools software is a 3D optical engineering and design product that supports virtual prototyping, simulation, optimization and photorealistic rendering of illumination applications. Learn more at http://optics.synopsys.com/lighttools.

About Synopsys

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