

Synopsys' LightTools Offers New Solutions for Lighting Systems Design and Analysis

LightTools version 7.3 is now generally available

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Highlights:

- Introduces a utility for designing and optimizing roadway lighting systems
- Leverages leading-edge metrics to augment analysis of light source color performance
- Delivers enhanced phosphor modeling for the design of warm-light LEDs
- Simplifies and speeds design management with a centralized optical property manager
- Accelerates large model simulations with performance enhancements

Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP used in the design, verification and manufacture of electronic components and systems, today announced the availability of enhancements to its LightTools® illumination design and analysis software. LightTools version 7.3 delivers a variety of new illumination design features in areas such as application-specific design, color quality analysis, LED phosphor modeling, and design management and performance that can help designers work more efficiently, save product development costs and deliver high-performance lighting systems.

"When designing illumination systems, we work closely with mechanical engineers, moldmakers and other teams at every step of the design process," said Blair Unger, president of Blu Optics, LLC. "LightTools gives us the information-sharing capabilities we need to meet those process requirements, along with the design and optimization power that lets us speed up product development."

"We want to provide luminaire designers with new and better ways to turn their ideas into great designs and, ultimately, into products that give them a competitive advantage," said George Bayz, vice president and general manager of the Optical Solutions Group at Synopsys. "With LightTools 7.3, we have delivered powerful tools to help them accomplish this, with software enhancements to more effectively jumpstart, analyze, optimize and manage illumination designs."

Application-Specific Design: Street Lighting Utility

The LightTools Street Lighting Utility provides a specialized set of tools that guide users through the process of evaluating, designing and optimizing luminance and illuminance patterns on roadways to meet industry-standard specifications. Key capabilities include:

- Models complex luminaire designs directly in a roadway lighting configuration;
- Supports automatic design optimization to help ensure that the design meets industry standards, such as surround ratio and average luminance;
- Performs fast calculations of perceived light levels on a street for a series of fixtures;
- Calculates luminance data based on standard observer positions;
- Displays pass/fail criteria for the design based on industry standards.

Leading-Edge Metrics for Color Quality Analysis

LightTools now supports two additional metrics for evaluating a light source's color rendering performance: Color Quality Scale (CQS) and Gamut Area Index (GAI). These metrics are particularly useful for measuring the color quality of LED sources, and they augment the lighting industry's primary tool, Color Rendering Index (CRI), for evaluating a light source's saturation and contrast. Both CQS and GAI provide a highly accurate evaluation of light quality for color-critical applications, such as in retail environments.

LED Phosphor Modeling Enhancements

Enhanced phosphor modeling processes in LightTools help streamline phosphor material manufacturing for solid-state lighting applications. Phosphors are an important part of LED lighting systems because they are used to enhance LED color appearance and brightness. For example, phosphors can be used with an LED to create the warm white color of an incandescent lamp, which can improve the appearance of LED lights in retail and residential settings. LightTools now provides the flexibility to specify phosphor mixture ratios as a percentage by volume or weight. During manufacturing, this simplifies the process of determining phosphor particle concentration and relating model parameters to laboratory procedures.

Improvements to Design Management and Performance

The LightTools Optical Property Manager helps users more efficiently manage their design data. It provides a central location for assigning and changing optical properties throughout a model, as well as for defining defaults applied to new objects. An

optical property in the master list controls all the areas in the model to which it is applied, so it is easy to make global changes at one time. Because of the Optical Property Manager's central data storage, LightTools models with this feature are smaller and use less memory. This is an important benefit for all models and a significant advantage for large models.

In addition, LightTools 7.3 has been enhanced to accelerate operations, especially for large models, and includes 64-bit support that effectively eliminates model size limitations.

Availability & Resources

LightTools version 7.3 is available now and can be obtained by emailing ora_support@synopsys.com. Learn more about LightTools: <https://www.synopsys.com/optical-solutions.html>.

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 <https://www.synopsys.com/optical-solutions.html>.

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) is a world leader in electronic design automation (EDA), supplying the global electronics market with the software, intellectual property (IP) and services used in semiconductor design, verification and manufacturing. Synopsys' comprehensive, integrated portfolio of implementation, verification, IP, manufacturing and field-programmable gate array (FPGA) solutions helps address the key challenges designers and manufacturers face today, such as power and yield management, system-to-silicon verification and time-to-results. These technology-leading solutions help give Synopsys customers a competitive edge in bringing the best products to market quickly while reducing costs and schedule risk. Synopsys is headquartered in Mountain View, California, and has approximately 70 offices located throughout North America, Europe, Japan, Asia and India. Visit Synopsys online at <https://www.synopsys.com>.

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