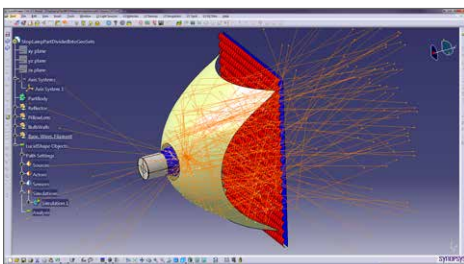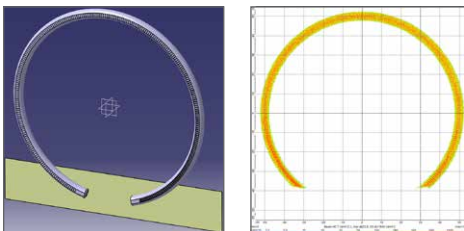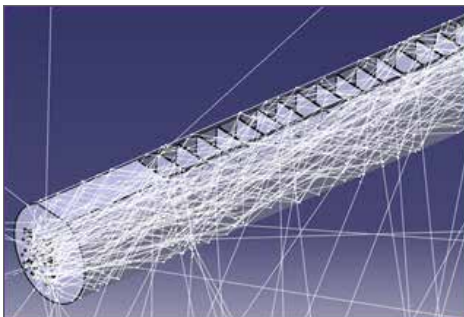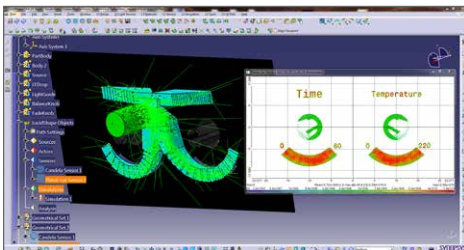# LucidShape CAA V5 Based

Fast, Accurate Optical Simulation and Analysis of Automotive Lighting Products with Minimal Learning Curve for CATIA V5 Users

LucidShape® CAA V5 Based is an interactive tool that allows designers to perform optical simulations and analyses of automotive lighting products within the CATIA V5 environment. Because of the tool's complete integration within CATIA V5, designers who are familiar with CATIA can easily leverage LucidShape's powerful features to produce, with a minimal learning curve, automotive lighting products that meet performance, styling, visual branding and regulatory requirements.

Key Capabilities

Geometry Creation and Import

To build your automotive lighting model in LucidShape CAA V5 Based, you can use CATIA-generated geometry or import geometry from LucidShape. You can then choose various sources and sensors, assign, create and edit materials and media using a materials library, and define simulation settings and analysis preferences.

- Sources: point, plane, cylinder, and ray file
- Sensors: candela, luminance camera, ray file, ray history
- All LucidShape actor materials are supported and the material definitions are organized in a material library
- Supports CATIA V5 workbenches so you can customize your workflows to speed up the modeling process

Easy Visual Navigation of Complex Models

Model navigation and management is highly efficient with the software's specification tree structure, which keeps all automotive lighting components organized and accessible from a single location. For example, products have a tree section that shows all LucidShape-specific elements in an entire product assembly.

Rapid Design Verification

The software can rapidly and accurately ray trace part-level models or product-level assemblies using both tessellated and NURBS simulation methods, for the most comprehensive CATIA-based optical simulations currently available. You can run a simulation on one part while you continue to work on another part in the same project.
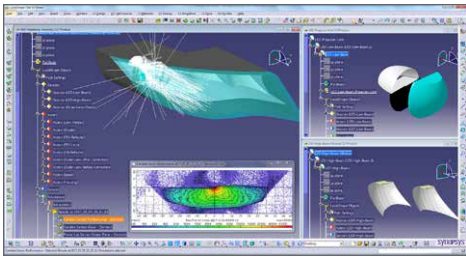
The software also supports multi-core processing and GPU ray tracing (for tessellated mode only) to further accelerate simulations.

Full Suite of Analysis Tools

The software delivers a comprehensive spectrum of UV data analysis tools, as well as bird's eye and driver's views. A large set of test point standards are included to ensure that your system meets both industry regulations and company specifications. Specific analysis tools include:

- Test tables (ECE, SAE, JIS, user defined)
- Special views (bird's eye view, driver's view)
- Variety of UV data operations (scale, shift, rotate, etc.)
- Planar Lux Sensor for quantitative analysis of near-field illuminance
- Luminance Camera Sensor for rapid, high-accuracy luminance images at multiple viewing directions. Includes ray history sensor feature to restore ray paths that correspond to region selections on specific luminance camera images; this functionality allows you to efficiently troubleshoot signal lighting optical systems, by correlating regions in the luminance image with specific ray paths, and thereby the respective optical surfaces. As a result, the number of design iterations that are needed to meet lit appearance, in addition to regulation compliance, can be significantly reduced
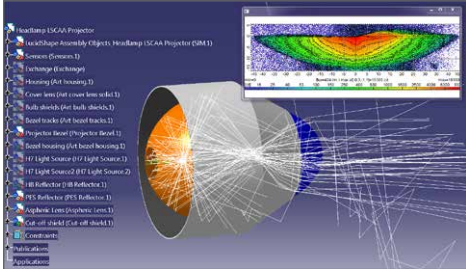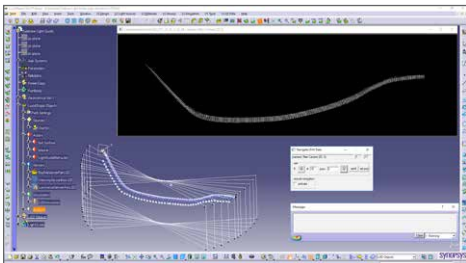
You can easily export your model to LucidShape to perform other tasks, including simulation and visualization of lit and unlit appearance.
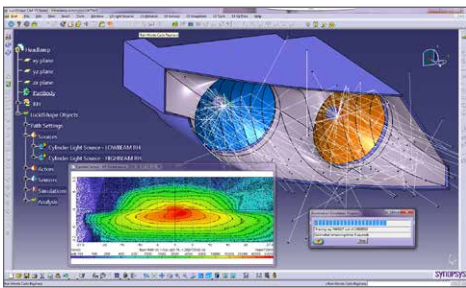
Light Guide Design Module

The Light Guide Design Module helps automate the construction, analysis and optimization of light pipes and their extraction features to improve light output.

Example Model Library

A robust example model library, with intuitive features for browsing, searching and filtering content, helps you get a head start on model creation and analysis tasks.
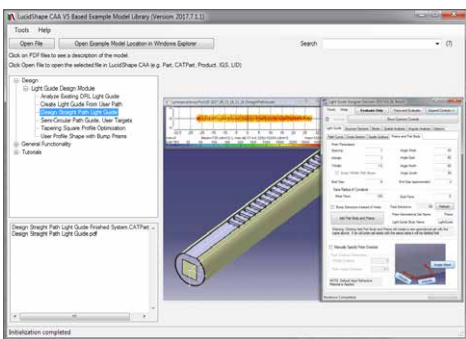
For more information, please contact Synopsys' Optical Solutions Group at (626) 795-9101, visit synopsys.com/optical-solutions, or send an e-mail to lucidshapeinfo@synopsys.com.

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