

# LucidShape Application: Accelerating Headlamp Reflector Design

## Overview

An automotive headlamp supplier's light engineering team was tasked with creating optical designs that met customer requirements and industry regulations. To finish feasibility studies and pre-development as soon as possible, they required fast, versatile software design tools to get the job done.

## The Challenge

Automotive headlamps require a complex light pattern and are challenging to design and develop. To create a production model of an automotive headlamp, suppliers need to run through all phases and stages of the design process, costing valuable project time in each phase. With other automotive lighting software packages, the feasibility phase can be too time consuming. As quickly as possible, it is necessary to determine:

- Whether the design meets regulations
- If estimations for safety margins are satisfactory
- If the overall light pattern meets customer requirements

## The Solution

LucidShape® makes the headlamp design process faster and more efficient. It allows suppliers to speed the feasibility phase and reuse and adjust existing solutions and strategies for reflector design with the following process:

- Start: Run a feasibility check and create optical facet grids with an established strategy
- Proceed: Transport feasibility approaches directly into development models
- Reflector shaping: Calculate the reflector surface using the MacroFocal tool
- Simulation: Choose from multiple ray tracing methods and simulate design results faster

For more information, please contact Synopsys' Optical Solutions Group at (626) 795-9101, visit [synopsys.com/optical-solutions/lucidshape](https://www.synopsys.com/optical-solutions/lucidshape), or send an e-mail to [lucidshapeinfo@synopsys.com](mailto:lucidshapeinfo@synopsys.com).

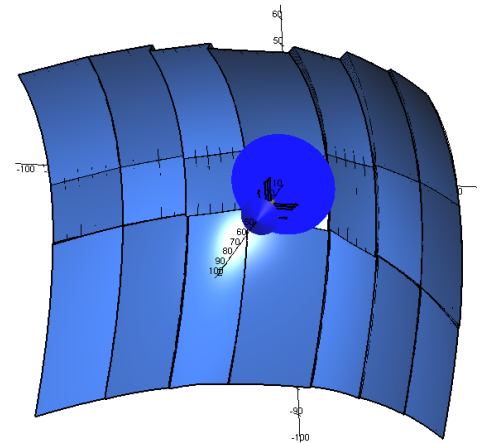


Figure 1: H4 headlamp reflector case study in LucidShape



Figure 2: Final H4 product example