# Ansys

# Ansys + Safran

"Ansys SPEOS allows us to create photometric simulations that are very true to reality and to model lighting curves on the ground based on different aiming combinations of the various light beams on a given aircraft. Thus, we can adapt the design or integration of our prototypes according to the interactions observed. The intuitive interface of the software, its advanced features and integration with popular CAD tools have made it easy for our teams to deploy and master it."

**Christian Tsao**
Optical Design Leader / Safran Aerosystems

The company designs full lighting and signaling solutions based on LED technologies for aircraft manufacturers and airlines: position, navigation and anti-collision lights; landing and taxi lights; and backlit panels and indicators. Designing high-performance lighting systems and meeting client specifications as well as international standards can be expensive and time-consuming because the majority of devices have to be validated under the final conditions in runway tests.

## Safran Aerosystems Develops Exterior Aircraft Lighting of the Future with Ansys SPEOS Optical Simulation

### / Company Description

Safran Aerosystems develops civil and military solutions for applications at sea, on land, in the air and in space. A subsidiary of the SAFRAN Group, the company is a global leader in aeronautical equipment and systems. It designs and manufactures components that provide essential functions in-flight and on-board aircraft, including interior and exterior lighting and signaling as well as cockpit equipment.

### / Challenges

It is difficult to validate exterior aeronautical lighting by test iteration on runways because teams cannot easily mobilize pilots and aircraft. Also, when testing aircraft lighting, you have to take into account weather conditions, visibility from the cockpit, wing topology and the configuration of the runways. A high-performance digital simulation tool was needed to explore and validate solutions that meet client requirements while minimizing the infrastructure constraints of runway tests.

### / Technology Used

• Ansys SPEOS

### / Engineering Solution

SPEOS software was used to model, simulate and validate virtual prototypes of interior and exterior lighting and signaling systems. Thanks to simulation capabilities for light and human vision, coupled with extensive materials libraries and an optical design optimizer, Safran engineers were able to test large numbers of concepts and scenarios rapidly. Using SPEOS, they created concepts whose lighting criteria were validated by simulation (photometry, colorimetry, homogeneity, width, density of light beams, etc.) to guarantee product conformity.

### / Benefits

Ansys SPEOS has enabled Safran Aerosystems to significantly reduce the cost and time of designing and validating lighting systems, thereby shortening the time to market for its equipment. In this effort, SPEOS was an indispensable aid to decision-making. It also boosted creativity and innovation: Teams gave free rein to their imagination, coming up with more proposals than ever.
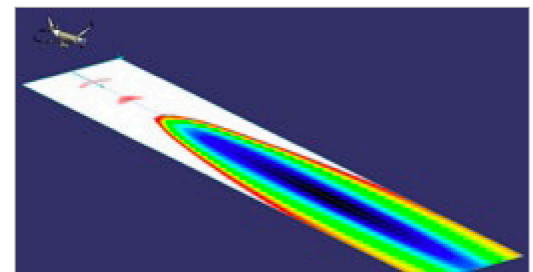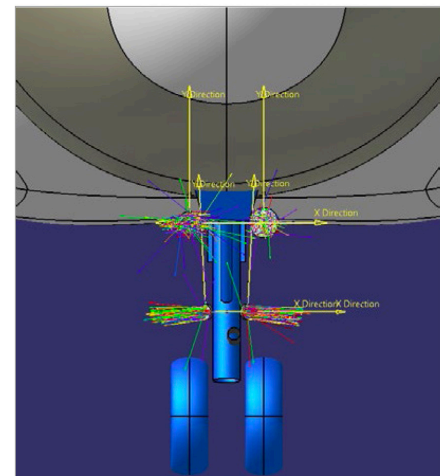
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