Optomechanical Packaging Analysis

OpticsBuilder™

Description

Exclusively available in OpticsBuilder, the Optomechanical Packaging Analysis (OPA) enables CAD users to simulate the difference in performance based on light propagation through optics alone compared to light propagation through optics and mechanics together. When the product is readying for manufacturing, the OPA provides helpful insights as to whether the mechanical components have had an effect on the optical performance. By analyzing how light interacts with the mechanical assembly surfaces, CAD users can detect optical errors early, reduce back-and-forth communication with Optical Engineers and avoid expensive prototyping.

• Using the OpticStudio physics core, simulate how light interacts with the mechanical components of the optomechanical system.
• Quickly identify errors in the native CAD platform, without requiring access to an OpticStudio license.
• Analyze how packaging directly impacts optical performance without engaging an optical engineer or relying on assumptions.

Key Features

Features	Description
Simulation	Quickly see how the assembly impacts the optical performance. The OpticsBuilder light simulation displays the difference between how the optics propagate light compared to the performance of the optics and mechanics together. The light simulation tool prevents unnecessary rendering time by detecting which mechanical components were altered, only rendering the altered components in following simulations.
Spot size	Easily compare how the spot size, the diameter of light at the focal plane when focused by a lens, changes when the mechanical assembly is added to the optics. This spot size check indicates whether the mechanical components altered the optical performance when added to the design.
Beam clipping	Determine whether the addition of mechanical components impact the radiant power, the total light traveling through the system. When mechanical packaging is introduced to the optical system, the added surfaces can intersect or clip the light propagating through the system. When this happens the light scatters in an unintended direction, reducing the light traveling through the system and hitting the detector. With OpticsBuilder, the user understands whether the mechanical assembly affected the optical performance.
Image contamination	Easily visualize if image contamination was added when the mechanical assembly is added to the optical design. Adding mechanical components to an optical system may cause rays to take unintended or unwanted paths to the detector as specified by the original design. With OpticsBuilder, users can detect image contamination to ensure correct optical performance.
Critical rays	Quickly start building the mechanical packaging by viewing the critical or "boundary" rays within the native CAD platform. During the Prepare for OpticsBuilder process within OpticStudio, the optical engineer defines the chief and ring rays, known as "boundary" rays within OpticsBuilder. These boundary rays are automatically displayed for CAD users to visualize the optical boundaries for mechanical packaging.

Zemax