

/ OPTICS	Speos Pro	Speos Premium Design	Speos Premium Sensor	Speos Premium Visualization	Speos Enterprise	OpticStudio Pro	OpticStudio Premium	OptiStudio Enterprise						
ANSYS PRODUCTS EMBEDDED														
Ansyz SpaceClaim: Direct Modeler	●11	●11	●11	●11	●11									
Ansyz SpaceClaim: CATIA V5 interface	■11	■11	■11	■11	■11									
Ansyz SpaceClaim: NX interface	■11	■11	■11	■11	■11									
Ansyz SpaceClaim: PTC Creo interface	■11	■11	■11	■11	■11									
Ansyz SpaceClaim: SolidWorks interface	■11	■11	■11	■11	■11									
Ansyz Optics Launcher	●11	●11	●11	●11	●11	●	●	●						
GENERAL SOLVER CAPABILITIES														
Sequential Ray Tracing						●	●	●						
Monte Carlo Forward (Non-Sequential) Ray Tracing	●	●	●	●	●	●	●	●						
Monte Carlo Backward (Non-Sequential) Ray Tracing		●	●	●	●									
Dispersion	●	●	●	●	●	●	●	●						
Ambient Material	●	●	●	●	●	▲	▲	▲						
Surface Scattering (Diffusion)	●	●	●	●	●	●	●	●						
Volume Scattering (Diffusion)	●	●	●	●	●	●	●	●						
Deterministic Simulation with Irradiance Sensor	●	●	●	●	●									
Spectral Propagation	●	●	●	●	●	●	●	●						
Multiple Configuration System Modeling	●	●	●	●	●	●	●	●						
Black Box Encryption	●	●	●	●	●	▲	▲	▲						
Virtual BSDF					●13									
SOLVER PERFORMANCE														
Number of Parallel Application Instances per License	N/A	N/A	N/A	N/A	N/A	4	8	8						
CPU-based Parallel Solving on Local PC	●	●	●	●	●	●	●	●						
CPU-based Parallel Solving on Cluster	●	●	●	●	●									
CPU-based Parallel Solving with Ansys Cloud (from desktop)	●	●	●	●	●									

- Full Support
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SOLVER PERFORMANCE															
Ansys RSM compatibility	●	●	●	●	●										
SPEOS Live Preview (GPU acceleration)		■12	■12	■12	■12										
SPEOS GPU Compute (GPU acceleration)		●	●	●	●										
Multi-GPU solving on Local PC					●										
ADVANCED PHYSICS															
Polarization Ray Tracing	▲	●	●	●	●	●	●	●							
Gradient Index Ray Tracing	■11	■11	■11	■11	■11	●	●	●							
Birefringence Ray Tracing	●	●	●	●	●	●	●	●							
Phosphor & Fluorescence Modeling	●	●	●	●	●	●	●	●							
1D RCWA Modeling							●	●							
2D RCWA Modeling								●							
PHOTOMETRY / RADIOMETRY															
Intensity	●	●	●	●	●	●	●	●							
Illuminance/Irradiance	●	●	●	●	●	●	●	●							
Luminance / Radiance	●	●	●	●	●	●	●	●							
3D Illuminance/3D irradiance	●	●	●	●	●	●	▲	▲	▲						
3D Energy Density		●	●	●	●	●	●	●							
WAVELENGTH RANGE															
Visible (360nm - 830 nm)	●	●	●	●	●	●	●	●							
UV (100nm - 360 nm)	●	●	●	●	●	●	●	●							
Near IR (830nm - 2.5 um)	●	●	●	●	●	●	●	●							
Far IR (2.5 um - 100 um)	●	●	●	●	●	●	●	●							
OPTICAL SOURCES															
Interactive Source (discrete)	●	●	●	●	●	●	●	●							
Surface Source	●	●	●	●	●	●	●	●							
Surface Source with variable exitance	●	●	●	●	●	●	●	●							

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OPTICAL SOURCES															
Ray file source - general	●	●	●	●	●	●	●	●							
Ray file source based on TM-25 format	●	●	●	●	●										
Luminaire source (IES, EULUMDAT)	●	●	●	●	●	●	●	●							
Source Group	●	●	●	●	●	▲	▲	▲							
Display Source		●	●	●	●										
Uniform Ambient Source		●	●	●	●										
HDR! Source		●	●	●	●										
CIE Sky Source		●	●	●	●										
Natural Light Source		●	●	●	●										
US Standard Atmosphere 1976 source			●		●										
Thermic Source			●		●	●	●	●							
DATA LIBRARIES															
Design Templates Collection						●	●	●							
Lens Catalog						●	●	●							
Optical Data in Materials Catalog	●	●	●	●	●	●	●	●							
Mechanical Data in Materials Catalog						●	●	●							
Coatings Catalog	●	●	●	●	●	●	●	●							
Test Plate Lists						●	●	●							
Luminaire Source Data Files							●	●							
Spectrum Data Files	●	●	●	●	●	●	●	●							
Standards / Regulations	●	●	●	●	●										
OPTIMIZATION															
Design of Experiment	●	●	●	●	●	●	●	●							
Sliders & Visual Optimizers						●	●	●							
Design Optimization	●	●	●	●	●	●	●	●							
Local Optimization						●	●	●							
Global Optimization	●	●	●	●	●	●	●	●							
Material Substitution						●	●	●							

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OPTIMIZATION															
Contrast Optimization						●	●	●							
High Yield Optimization						●	●	●							
Connector in Ansys optiSLang	●	●	●	●	●	●	●	●							
TOLERANCING															
Sensitivity Tolerancing						●	●	●							
Monte Carlo Tolerancing	●	●	●	●	●	●	●	●							
Quick Yield Analysis						●	●	●							
Tolerance Data Viewer						●	●	●							
Tolerance Data Analysis						●	●	●							
Composite Surface						●	●	●							
IMAGING SYSTEM DESIGN															
50 Sequential Field Points (Best For Aspheric Design)						●	●	●							
2000+ Sequential Field Points (Best For Freeforms)							●	●							
Ray Aiming						●	●	●							
Aspheric Optics						●	●	●							
Freeform Optics						●	●	●							
Diffractive Optics						●	●	●							
Stock Lens Matching Tool						●	●	●							
TrueFreeform							●	●							
Composite Surface						●	●	●							
IMAGING SYSTEM ANALYSIS															
Image Quality Analysis (Geometric and Diffractive)						●	●	●							
Image Simulation Analysis						●	●	●							
Full-Field Aberration Analysis						●	●	●							
LIGHTING AND ILLUMINATION SYSTEM DESIGN															
3D Textures		●	●	●	●										
Parabolic Surface	● ¹²	● ¹²			● ¹²	●	●	●							

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LIGHTING AND ILLUMINATION SYSTEM DESIGN															
TIR Lens	● ¹²	● ¹²			● ¹²	●	●	●							
Projection Lens	● ¹²	● ¹²			● ¹²	▲	▲	▲							
Optical Lens with pillows		● ¹²			● ¹²	▲	▲	▲							
Reflector with pillows		● ¹²			● ¹²	▲	▲	▲							
Light Guide		● ¹²			● ¹²										
Sharp Cut-Off Reflector		● ¹²			● ¹²										
Poly Ellipsoidal Surface		● ¹²			● ¹²										
Micro Optical Stripes		● ¹¹			● ¹¹										
Freeform Lens		● ¹¹			● ¹¹	▲	▲	▲							
Honeycomb Lens		● ¹²			● ¹²										
Interactive Photometric Simulation		● ¹²			● ¹²										
LASERS & FIBERS															
Gaussian Beams						●	●	●							
Laser Diode Modeling						●	●	●							
User-Defined Beam Profiles						●	●	●							
Single Mode Fiber Coupling						●	●	●							
Multi-Mode Fiber Coupling						●	●	●							
M2 & Beam Quality						●	●	●							
Physical Optics Propagation						●	●	●							
STRAY LIGHT ANALYSIS															
Ghost Focus Generator						●	●	●							
Ray Splitting						●	●	●							
Ray Scattering	●	●	●	●	●	●	●	●							
Importance Sampling						●	●	●							
Measured Surface Scattering Data	●	●	●	●	●		●	●							
Layer by Sequence / Path Analysis	●	●	●	●	●		●	●							

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STRAY LIGHT ANALYSIS															
Light Path Finder	●	●	●	●	●										
Advanced Light Expert on Multiple Sensors		● ¹²	● ¹²	● ¹²	● ¹²										
HEAD-UP DISPLAY															
HUD Optical Component Design		● ¹²			● ¹²	●	●	●							
HUD Optical Analysis		● ¹²			● ¹²										
HUD Optical Smart Design		● ¹²			● ¹²										
CAMERA SENSOR															
Camera Sensor			●		●										
Field of View			●		●										
Export Sensor Grid as Geometry			● ¹²		● ¹²										
Inverse simulation with Irradiance Sensor			●		●										
Camera Raw Signal Export			●		●										
Camera Sensor Post Processing			●		●										
CMOS model from Lumerical Simulation			●		●										
Dynamic Effects in Camera Simulation			● ¹¹		● ¹¹										
LIDAR SENSOR															
LiDAR Sensor			● ¹²		● ¹²										
LIDAR Raw Time of Flight generation			● ¹²		● ¹²										
LiDAR field of view simulation			● ¹²		● ¹²										
LiDAR Rotating & Scanning			● ¹¹		● ¹¹										
LIDAR Raw Time of Flight generation			● ¹¹		● ¹¹										
Dynamic Effects in LiDAR Simulation			● ¹¹		● ¹¹										
LIT & UNLIT APPEARANCE															
Deterministic Simulation with Radiance Sensor				●	●										
360 View - Observer				● ¹²	● ¹²										

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LIT & UNLIT APPEARANCE															
360 View - Immersive				●	●										
Virtual Reality Lab				●	●										
Human Vision algorithm				●	●										
Human eye Sensor				● ¹²	● ¹²										
Local Adaption				●	●										
Dynamic Adaption				●	●										
Glare Simulation				●	●										
Sun Glasses influence				●	●										
Visibility and Legibility				●	●										
Night Vision Goggle				●	●										
Color deficiency evaluation				●	●										
HDR10 Screen Support				●	●										
MULTIPHYSICS SIMULATION & ANALYSIS															
Thermally Induced Refractive Index Changes	●	●	●	●	●	●	●	●							
Connection to Ansys Mechanical through Workbench					●										
STAR FEA Data Loading and Visualization Tools														●	
STAR FEA Data Fitting and Alignment Tools														●	
STAR System Viewer and Data Summaries														●	
STAR Performance Analysis														●	
STAR 2D Deformation Plot														●	
STAR Thermal Index Plot														●	
CFD Direct Index Fitting														●	
SIMULATION PREPARATION															
Source Group	●	●	●	●	●										
Geometry Group	●	●	●	●	●										
Local Meshing	●	●	●	●	●										
Polarizer		●	●	●	●										

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SIMULATION PREPARATION															
Light Field	● ¹¹	● ¹¹	● ¹¹	● ¹¹	● ¹¹										
Preset Manager	●	●	●	●	●										
Texture Mapping (Bump, Multi-Layer)		●	●	●	●										
POST PROCESSING															
Virtual Lighting Controller		●	●	●	●										
Photometric Numerical Certification	●	●	●	●	●										
Colorimetric Analysis	●	●	●	●	●										
Spectral Analysis		●	●	●	●										
Layer by Source		●	●	●	●										
Layer by Face		●	●	●	●										
Layer by Polarization		●	●	●	●										
Layer by Incident Angles			●		●										
CUSTOMIZATION & AUTOMATION															
Script Automation	●	●	●	●	●	●	●	●							
User-Defined Plugin for Surface, Objects, and Sources						●	●	●							
User-Defined Plugin for Scatter Profiles		● ¹¹	● ¹¹	● ¹¹	● ¹¹	●	●	●							
User-Configurable Shortcut Keys	●	●	●	●	●	●	●	●							
Result Post-Processing	●	●	●	●	●										
APPLICATION PROGRAMMING INTERFACE (API)															
Headless Solver	●	●	●	●	●	●	●	●							
MATLAB Interoperability						●	●	●							
Python API						●	●	●							
COM API	●	●	●	●	●	●	●	●							
.NET API						●	●	●							
TOOL INTEROPERABILITY															
Prepare for OpticsBuilder						●	●	●							
Export Reduced Order Model (ROM) to Speos						●	●	●							

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TOOL INTEROPERABILITY														
Export Optical Design to Speos						●	●	●						
Import Optical Design from OpticStudio	● ¹¹	● ¹¹	● ¹¹	● ¹¹	● ¹¹									
Lumerical Sub-Wavelength Model (LSWM) plugin simulation (Static Data Exchange)	● ¹¹	● ¹¹	● ¹¹	● ¹¹	● ¹¹	●	●	●						
Lumerical Sub-Wavelength Model (LSWM) plugin simulation (Dynamic Data Exchange)							●	●						
Lumerical Plugin for Metalens Simulation (Static Data Exchange)							●	●						
Speos LightBox Import	●	●	●	●	●									
Speos LightBox Import (with Password Protection)	●	●	●	●	●									
CAD INTEROPERABILITY														
Export to STEP, IGES, SAT, STL	●	●	●	●	●	●	●	●						
Import STEP, IGES, SAT, STL	●	●	●	●	●	●	●	●						
Dynamic Link to Creo Parametric	●	●	●	●	●		●	●						
Dynamic Link to Autodesk Inventor	●	●	●	●	●		●	●						
Part Designer - Static Parts						●	●	●						
Part Designer - Dynamic Parts							●	●						

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