SYNOPSYS®

DATASHEET

RSoft Photonic Device Tools

Features at a Glance

- Rapid virtual prototyping of passive and active photonic and optoelectronic devices
- Discovery of new products with "what if" product scenarios
- Common CAD interface for all tools
- Automatic scanning and parameter optimization
- Scripting in any programming language

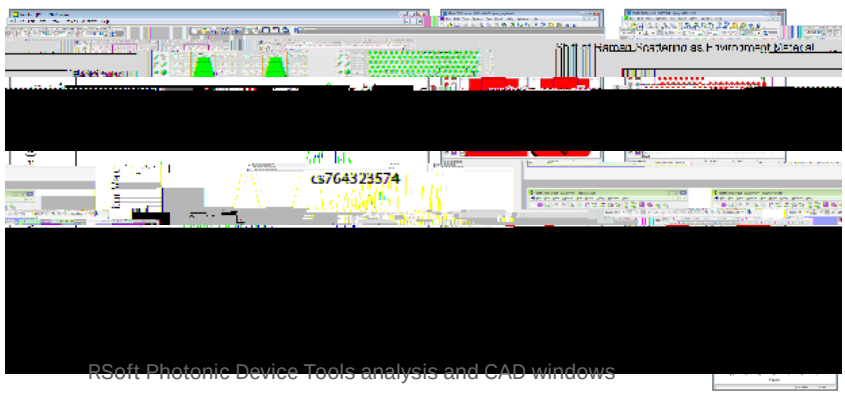
Overview

The RSoft Photonic Device Tools provide the industry's widest portfolio of simulators and optimizers for passive and active photonic and optoelectronic devices, including lasers and VCSELs. We are integrated with Synopsys optical and semiconductor design tools for streamlined, multi-domain co-simulations:

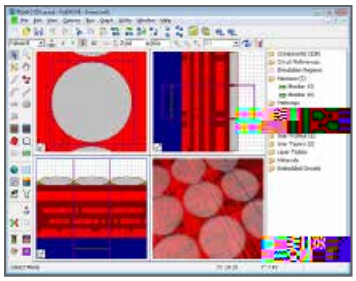
- Synopsys CODE V and LightTools products for rigorous modeling of nano-textured optical structures and diffraction analysis
- Synopsys Sentaurus TCAD products for simulations of complex optoelectronic devices.

Key Features

- Highly accurate algorithms allow for rapid virtual prototyping reducing the need for costly and lengthy physical prototyping increasing productivity and decreasing time-to-market.
- Assists in the discovery of new products by creating "what if" product scenarios.
- Each algorithm engine shares a common CAD interface; the software can utilize multiple RSoft packages without having to import designs from one software to the next.
- Scripting can be done with any programming language.
- Includes automated parameter scanning via MOST.
- Each simulation engine is licensed and sold separately, allowing users to choose only those that are relevant to their work.



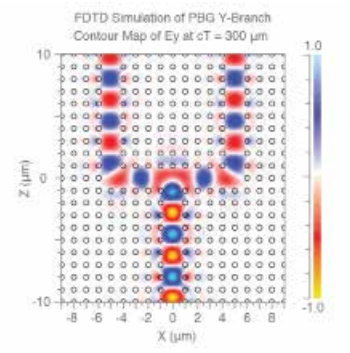
RSoft Photonic Device Tools analysis and CAD windows



RSoft Photonic Device Tools

- The RSoft CAD Environment is the core program of the RSoft Passive Device Suite and allows researchers and engineers to create systems for the design of waveguide devices, and optical circuits.

Passive Device Tools



- This highly sophisticated simulation tool is based on the Finite-Difference Time-Domain (FDTD) method for studying the propagation of light in a wide variety of photonic structures.
- The industry-leading tool based on the Beam Propagation Method (BPM) for the design and simulation of integrated and fiber-optic waveguide devices and circuits.
- This design and simulation tool is ideal for diffractive optical structures such as diffractive optical elements, subwavelength periodic structures, and photonic bandgap crystals.
- This tool is based on the Plane Wave Expansion (PWE) algorithm and is the first commercially available design tool to automate and simplify the modeling and calculation of photonic band structures for all photonic crystal devices.
- : This generalized mode solver is based on the Finite Element Method (FEM) and can be used to calculate any number of transverse or cavity modes of an arbitrary structure on non-uniform mesh.
- This general design tool based on Coupled Mode Theory (CMT) can be used to analyze and synthesize complicated grating profiles in optical fibers and integrated waveguide circuits for a wide variety of photonic applications.
- This Eigenmode Expansion Propagation (EME) tool can be used to account for both forward and backward propagation and radiation modes. It provides a rigorous steady-state solution to Maxwell's equations that is based on the highly-stable Modal Transmission Line Theory. A full array of analysis and simulation features make this tool flexible and easy to use.
- : MetaOptic Designer automatically generates metalenses and metasurfaces for optimal design performance. Designers at all levels of expertise can create novel metalens designs quickly and easily.