

RSoft Application: Parameter Extraction of Laser Diodes from Datasheets

Overview

A leading North American transceiver design company needed a way to design laser diode drivers without having to know the detailed physical parameters of the laser.

The Challenge

Understanding the details of laser behavior is critical to understanding laser diode driver performance. Laser behavior is governed by complex rate equations and depends on detailed knowledge of physical parameters. Vendor datasheets don't provide all the physical parameters needed to accurately model a laser. RSoft™ OptSim™ software is an ideal solution to fill this information gap.

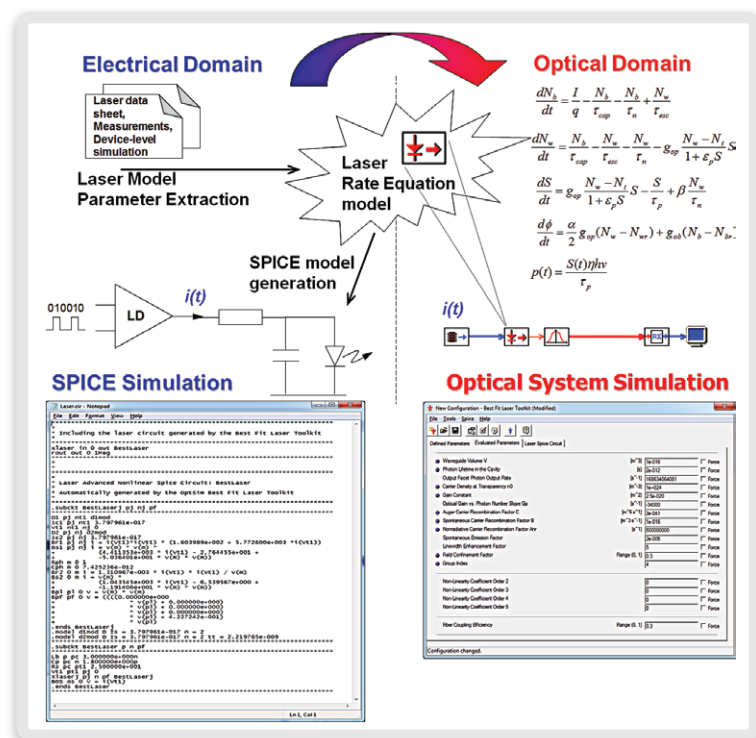


Figure 1. Far-field pattern for a simple flat OLED device (left); angular intensity and spectral distribution plots (right)

The Solution

RSoft OptSim provides a Laser Toolkit utility for parameter extraction. You can use vendor datasheets to input known parameters, and then run the Toolkit to obtain the remaining physical parameters of the laser.

The Result

Figure 1 shows the extraction of physical parameters by OptSim (lower right). Optionally, you can use OptSim to generate the laser's SPICE circuit (lower left; includes sub-circuits for the p-n junction and laser packaging) to design electrical driver circuitry in EDA tools.

For more information, please contact Synopsys' Optical Solutions Group at (626) 795-9101, visit <http://optics.synopsys.com/rsoft/>, or send an e-mail to rsoft_sales@synopsys.com.