

OptSim

OptSim is an award-winning software tool for the design and simulation of optical communication systems at the signal propagation level. With state-of-the-art simulation techniques, an easy-to-use graphical user interface and lab-like measurement instruments, OptSim provides unmatched accuracy and usability. The software has been commercially available since 1998 and is in use by leading engineers in both academic and industrial organizations worldwide.

Benefits

- ▶ Virtual prototyping of the optical communication systems for increased productivity and reduced time to market
- ▶ Optimization of the design for enhanced performance and/or reduced cost
- ▶ Interfaces with 3rd-party tools such as MATLAB® and the Luna Optical Vector Analyzer.
- ▶ Advanced electrical modeling with embedded SPICE engine

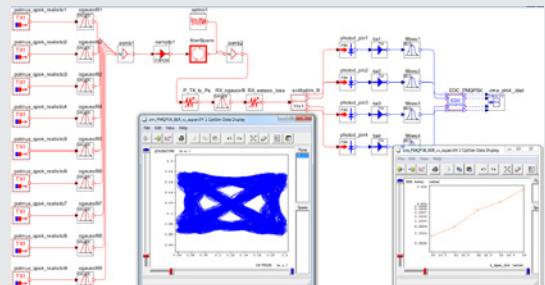
Applications

OptSim is ideally suited for computer-aided design of optical communication systems including, but not limited to:

- ▶ DWDM/CWDM systems with optical amplification, such as EDFA, Raman, SOA, OPA
- ▶ Advanced Modulation Formats, such as D(Q)PSK, Duobinary
- ▶ FTTx/PON
- ▶ Coherent Optical Communication Systems, such as PM-QPSK, PM-BPSK, PM-QAM, OFDM
- ▶ OCDMA/OTDM
- ▶ CATV Digital/Analog
- ▶ Optical Interconnects
- ▶ Electronic Dispersion Compensation (EDC)
- ▶ Free Space Optics (FSO)
- ▶ Soliton Transmission
- ▶ Interferometric Fiber Optic Gyroscope (I-FOG)

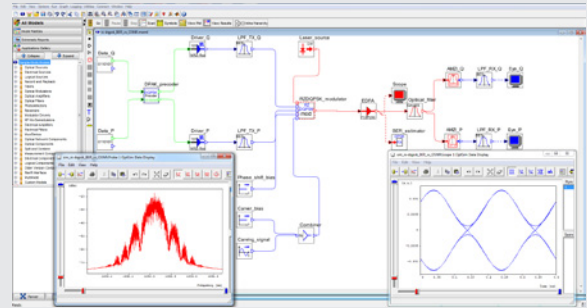
Featured Application

- ▶ Synchronous PoIMUX-QPSK system with 9 channels at 107 Gbit/s, 20x100 Km SMF fiber, and a DSP-based digital coherent receiver.
- ▶ Direct error counting on 262,144 simulated bits.
- ▶ OptSim's unique capability of simulating arbitrarily long bit sequences makes it the tool of choice to design systems where the direct error counting is required to assess the system performance, such as systems using FEC, MLSE, EDC, and DSP-based digital coherent receivers.

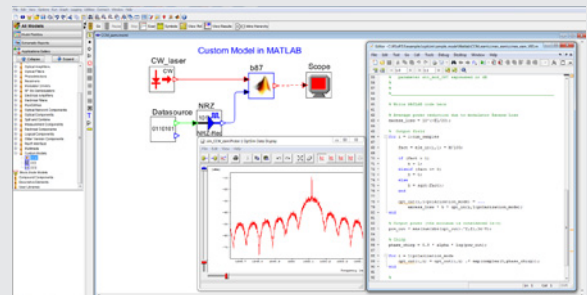


Features

- ▶ Support for multiple parameter-scans-based optimization.
- ▶ Only design tool with multiple engines implementing both the Time Domain Split Step and the Frequency Domain Split Step for the most accurate and efficient simulation of any optical link architecture.
- ▶ MATLAB® interface makes it easy to develop custom user models using the m-file language and/or the Simulink® modeling environment.
- ▶ Interfaces with laboratory test equipment such as Agilent and Luna to merge simulation with experiment.
- ▶ Interfaces with device-level design tools such as BeamPROP and LaserMOD provide a powerful mixed-level design flow for optoelectronic circuits and systems.
- ▶ Co-simulation with embedded SPICE engine, and interfaces with EDA tools such as Synopsys HSPICE for a mixed-domain electrical and optical simulation.
- ▶ Application Programming Interface (API) for programming languages such as C/C++ for the development of custom user models.
- ▶ Best Fit Laser Toolkit™ makes customizing powerful rate-equation laser model parameters to fit desired performance characteristics easy.
- ▶ Extensive library of predefined manufacturer components makes it easy to model commercially available devices.
- ▶ Intuitive and flexible measurement post-processing graphical interface acts like a virtual laboratory instrument.



OptSim project layout of a DQPSK system. OptSim includes an advanced BER estimator specific for D(Q)PSK systems based on Karhunen-Loeve series expansion.



OptSim-MATLAB cosimulation project layout. An Electro-Absorption Modulator with Chirp is modeled using the MATLAB m-file programming language. The MATLAB engine is automatically invoked by OptSim at runtime to simulate the EAM model.

SEE PAGE 42 FOR SYSTEM REQUIREMENTS