



## **RSOFT Celebrates OptSim™ 10-year Anniversary Edition 5.0**

**New edition to model systems deploying MLSE decoding, EDC equalization, bi-directional transmission, D(Q)PSK and OFDM modulation formats**

**February 20, 2008 – Ossining, NY** – RSOFT Design Group, leader in photonics design automation software, celebrates the 10-year anniversary of its award-winning optical communication system design tool by announcing *OptSim* 5.0. The new release will include new advanced features to model next-generation optical networks, with a particular focus on maximum likelihood sequence estimation (MLSE) decoding, electronic dispersion compensation (EDC) equalization, bi-directional transmission, and advanced modulation formats such as D(Q)PSK and OFDM.

The new *OptSim* features are instrumental in designing dispersion-tolerant and faster optical networks. Currently the worldwide telecommunication market is growing at a rapid pace fueled by the established convergence of data and voice (VoIP) networks, and by the fast rising demand for video download and video streaming services. The wide adoption of reconfigurable network elements is pushing the demand for dispersion-tolerant technologies capable of electrically compensating the dispersion at the receiver. At the same time, the exponential increase for bandwidth requirement is driving the transition from the common 10 Gbit/s optical transmission rate to higher data rates such as 40 Gbit/s, 100 Gbit/s and beyond.

In order to address these design requirements, *OptSim* 5.0 includes a new advanced model implementing an efficient MLSE processor to be used in intensity-modulation direct-detection (IMDD) optical receivers. The block consists of an analog-to-digital (A/D) converter (ADC) whose samples are sent to a parallel bank of branch metric computation stages. The extracted metric is sent to a Viterbi processor, which uses a reduced-state algorithm. The resolution of the A/D converter (ADC), the number of branch metric stages, and the number of states are user-defined parameters. *OptSim*'s unique capability of error counting over arbitrarily long bit sequences is the key enabler of MLSE system simulation, since there is no alternative analytical solution to assess the system performance.

In addition to MLSE decoding, *OptSim* 5.0 includes advanced models for FFE/DFE electronic dispersion compensation with coefficient optimization based on MMSE criterion. With these models, the user can specify the number of feed-forward and feedback taps. For feedback taps equal to zero, the model degenerates in a FFE EDC. The coefficients can be manually inserted so that the user can perturb their optimal value to

study the system resilience to sub-optimal EDC. *OptSim* 5.0 also includes additional Monte-Carlo and semi-analytical techniques specific for D(Q)PSK systems, new modulator and demodulator for OFDM systems, and a bi-directional fiber model taking into account co- and counter-propagation of signal and pumps in nonlinear optical fiber.

“Optical communication design tools such as *OptSim* and its multi-mode companion *ModeSYS* provide the engineer with a virtual lab to rapidly prototype optical networks, analyze their performance, and test different what-if-scenarios,” said Robert Scarmozzino, RSoft’s Chief Executive Office. “As we celebrate *OptSim*’s 10-year anniversary, we acknowledge the technical and market growth of optical communication design tools over the past 10 years. In the early years of product introduction, simulation software was a convenience, and now it is indispensable to the design and management of complex next-generation optical networks. As the years unfold, the industry investment in optical communication design software will continue to yield benefits in the pursuit of networks that are faster, cheaper and more flexible.”

RSoft’s *OptSim* 5.0 and *ModeSYS* 5.0 will be demonstrated at OFC/NFOEC 2008 in San Diego, CA, February 26-28<sup>th</sup>, booth #1926. The software is available for a free one month trial. For further information please contact RSoft Design Group at [info@rsoftdesign.com](mailto:info@rsoftdesign.com).

### **About RSoft Design Group, Inc.**

RSoft Design Group is the worldwide leader in photonics design automation software and serves several industries including optical communication, optoelectronics and semiconductor manufacturing. Within optical communications, RSoft Design Group, Inc. is the only company to provide a full range of design, optimization and planning software for the entire component- to network- level hierarchy. RSoft also provides design tools for passive and active optoelectronics components and subsystems as well as advanced electromagnetic modeling software for optical metrology and lithography. RSoft Design Group, Inc. is a privately held corporation with offices in the US, Japan and Europe and supports over 10 distributors worldwide.

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