Release Notes
RSoft OptSim, OptSim Circuit and ModeSYS
Version 2018.03

Optical Solutions Group

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SYNOPSYS®

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OptSim, OptSim Circuit and ModeSYS

The 2018.03 release of OptSim, OptSim Circuit and ModeSYS, Synopsys' RSoft System Tools, include the following changes:

- Support for parametric custom PDK components created with RSoft component tools

  The ability to create and use custom process design kits (PDKs) is vital to photonic integrated circuit (PIC) designers for creating foundry-specific intellectual property (IP) or enhancements to existing PDKs. OptSim Circuit version 2018.03 supports major enhancements in the S-Matrix/PDK Generation Utility in the RSoft Photonic Component Design Suite version 2018.03. The enhancements allow multiple variants of a PDK through parameterization of its S-matrix for circuit simulation and generation of netlists. Custom PDK components can be used as multi-stage circuit elements or in hierarchical circuit schematics, providing significant design flexibility and rapid prototyping abilities.

- Support for hierarchical components in the interface between RSoft OptSim Circuit and PhoeniX Software OptoDesigner tools

  Scalability is the key to supporting increasing component count and PIC design complexity. Hierarchical topologies allow design re-use and enable parametric scans over sub-sections of the design. The hierarchies need to be preserved both ways: schematic to layout and vice versa, which this new feature of OptSim Circuit 2018.03 supports.

- Inclusion of the American Institute for Manufacturing Integrated Photonics (AIM Photonics) Process Design Kit (PDK) version 2.0b

  Support for the American Institute for Manufacturing Integrated Photonics (AIM Photonics) Process Design Kit (PDK) version 2.0b and new PDAFlow libraries. The PDK helps save costs in PIC design and brings PIC designers a step closer to fabrication through SUNY Poly silicon photonics processes.

- Bidirectional NxM Electrical S-matrix block supporting Touchstone file format

  There is a need to model transmission and reflection characteristics of discrete and integrated electrical components based on RF measurements or electromagnetic simulation. S-matrix characterization is a common way of describing NxM passive, linear electrical networks. The most common industry file format for S-matrix measurements is the Touchstone file format. OptSim Circuit version 2018.03 adds support for modeling bidirectional NxM-port electrical components based on their S-matrix data in the Touchstone format.

- Support for m-QAM and arbitrary constellation shaping in OptSim DSP Library for MATLAB

  Digital signal processing (DSP) is required at the transmitter and at the receiver of a high-speed coherent communication system that uses advanced, spectrally efficient data modulation formats. OptSim comes with a user-friendly library of MATLAB-based DSP algorithms to assist coherent-system designers in implementing their custom DSP algorithms. OptSim 2018.03 adds DSP algorithms to support m-QAM and arbitrary

constellation shaping to provide additional design and modeling capabilities to the designers of long-haul and metro data center interconnects.

- Documentation improvements
- Miscellaneous bug fixes, additions and improvements