VPIphotonics
DESIGN AUTOMATION

Press Information

15th of June 2015

Version 9.5

VPI Transmission & Component Design Suite

VPIphotonics announces a new release of its market-leading simulation and analysis environment for optical components and transmission systems

VPIphotonics, the leader in optical transmission system and component design software, announces the release of VPIphotonics Transmission & Component Design Suite Version 9.5, which includes the following simulation and analysis tools:

- VPItransmissionMaker™Optical Systems
- VPIlabExpert™
- VPIcomponentMaker™Fiber Optics
- VPIcomponentMaker™Photonic Circuits
- VPIplayer™

Especially noteworthy are modeling enhancements and usability improvements related to the simulation of multimode fiber based transmission systems, including support for spatial division multiplexing (SDM) applications and short-reach applications in data centers, for instance. Important new capabilities include:

- New means for detailed multimode fiber modeling considering not only linear dispersive effects, but also self-phase and inter-/intramodal cross-phase modulation caused by the Kerr nonlinearity
- New macro to apply directly typical parameter values of OM1, OM2, OM3, or OM4 fibers according to the ISO/IEC 11801 standard
- Support of binary Zemax® beam files (.zbf) to describe an optical beam and calculate the coupling coefficients between this beam and a multimode fiber or waveguide
- Accurate accounting for the spectral dependence of the fiber index profile by the fiber mode solver, which can significantly improve Differential Group Delay (DGD) calculations
- Enhanced multimode system-level amplifier model to support the individual definition of wavelength-dependent gain and noise characteristics for different spatial modes
- Significantly enhanced support of multimode signal analysis functions in VPIphotonicsAnalyzer

Furthermore, VPItransmissionMaker Optical Systems and VPIlabExpert Version 9.5 are compatible with the new Version 2.0 of VPItoolkit DSP Library, a pluggable toolkit providing access to an extensive collection of lab-proven digital signal processing (DSP) algorithms developed by the Photonic Networks and Systems department at Fraunhofer Heinrich-Hertz Institute (HHI). This new Version of the DSP Library provides significant functionality upgrades including the support of data-aided frequency domain equalization using, for example, CAZAC sequences, and means for off-line processing of experimental data.

Additonal new features of Version 9.5 include:

- New transmitter for polarization-multiplexed optical signals with arbitrary quadrature modulation performing normalization and predistortion, analog pulse shaping and emulation of imperfect D/A converter responses
- New DSP algorithms for coherent systems including deskewing, digital back propagation, and an stability-improved time-domain equalization multiple-input multiple-output (TDE-MIMO) algorithm
- Estimation of the effective number of bits (ENoB) of an A/D converter in presence of distortions such as jitter and differential nonlinearities
- Enhanced lab equipment module Tek_AWG_70002A to support not only sockets for communication with the device, but also the VXI-11 protocol
- Enhanced photonics multisection device modeling with the PhotonicsTLM module by supporting customizable discretization sizes of device sections
- New flexible format signal analyzer supporting the automated characterization of relative intensity noise (RIN) in lasers
- New module to deliver the differences between two optical or electrical signals within a specified tolerance to automate optimizations and help to manage complex simulations
- Enhanced graphical user interface to ease handling of and navigation through resources and simulation schematics
- Increased capabilities of parameter and user interface scripting using Python

About VPIphotonics

VPIphotonics™ sets the industry standard for end-to-end photonic design automation comprising design, analysis and optimization of components, systems and networks.

We provide professional simulation software supporting requirements of active/passive integrated photonics and fiber optics applications, optical transmission system and network applications.

Our team of experts delivers professional consulting services addressing customer-specific design, analysis and optimization requirements, and provides training courses on adequate modeling techniques and advanced software capabilities.

Our award-winning off-the-shelf and customized solutions are used extensively in research and development, and by product design and marketing teams at hundreds of corporations worldwide.

Over 160 academic institutions joined our University Program enabling students, educators and researchers an easy access to VPIphotonics' latest modeling and design innovations.

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