# VPIphotonics Design Suite Version 9.7

Berlin, 4th May 2016

New release of the 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 Design Suite Version 9.7, which includes the following simulation and analysis tools:

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

Especially noteworthy are modeling and usability enhancements for the design of modern transmission systems. Applications ranging from low-cost and high-speed direct-detection to high-capacity and flexible digital coherent are supported.
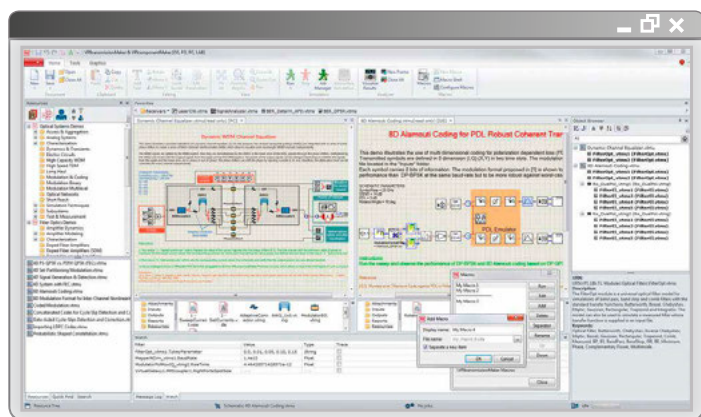
Photonic Design Environment (PDE) of Version 9.7

Important new capabilities include:

• Generation and detection of arbitrary N-dimensional modulation formats, spanning over IQ, XY, time, frequency, fiber modes and cores, and others
• Analysis of N-dimensional modulated signals including bit and symbol error rate (BER, SER) estimation, log-likelihood ratio (LLR) computation, symbol-to-bits decoding, automatic constellation alignment
• New adaptive equalizer model combining functionality of feed-forward and decision feedback equalizer (FFE/DFE) and nonlinear Volterra equalizer, which simplifies comparative studies of different equalizer types and settings
• Extended multimode signal model to support heterogeneous multicore fibers with cores that can have different parameters and support different number of modes
• Extended modules for multimode fiber, amplifier, couplers to support signals of multicore fibers as well
• Improved visualization and analysis of multimode signals by VPIphotonicsAnalyzer, including signals in multicore fibers; signal selection by core number, radial and azimuthal index
• Improved analysis (Q-factor, eye opening) of multi-level pulse amplitude modulation (mPAM) signals
• New and enhanced digital signal processing (DSP) algorithms, such as blind phase search (BPS) for carrier-phase recovery, multi-modulus algorithm (MMA) for optimal equalization of signals with higher-order modulation, and others

Many more features and enhancements are provided.
For details see: www.vpiphotonics.com/DSv97

Design Example - 8D Modulation Format

This demonstration illustrates the use of multi-dimensional coding for WDM applications. Transmitted symbols are defined in 8 dimensions ((I,Q) (X,Y), two time slots) using an input text file. Each symbol carries two bits of information. It has been shown in scientific publications that such a modulation format has a better performance than DP-BPSK for the same baudrate in both, linear and nonlinear regime. This behavior is demonstrated here as well for 7 x 22Gbaud transmission over 1500km for various signal powers.

VPIphotonics Design Suite Version 9.7 comes with over 800 demonstrations illustrating the provided wealth of functionality and application range.
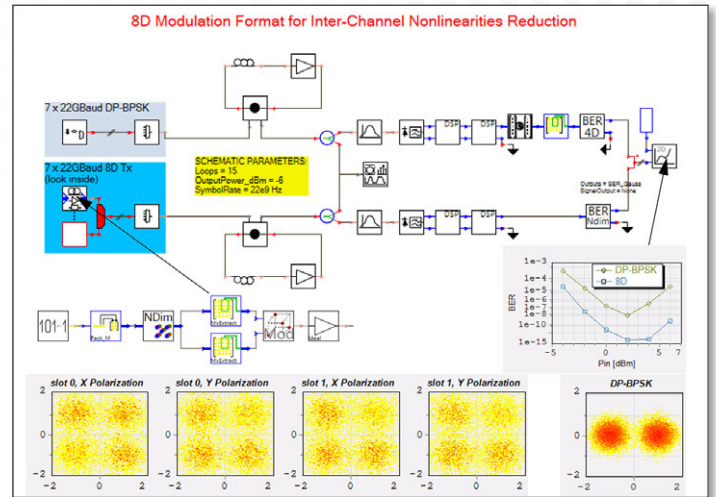
About VPIphotonics

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

VPIphotonics' 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.

For further information, please visit us at www.VPIphotonics.com.

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