

OptiSystem

What's New in

7.0

Created to address the needs of research scientists, optical telecom engineers, professors and students, OptiSystem satisfies the demand of users who are searching for a powerful yet easy to use optical communication system design tool.



What's new in OptiSystem 7.0

Featuring a number of requested enhancements to address the design of WDM passive optical networks (WDM-PON) based FTTx, Optical CDMA and radio over fiber systems (ROF).

True 64-bit Environment

OptiSystem 7.0 is a newly designed 64-bit application written specifically for next generation operating systems. The optimized code structure results in improved computing performance and efficient memory utilization. Users are now capable of running large scale 'real world' simulations, without any memory restrictions limited to 32-bit applications.

Optiwave shall continue to offer a 32-bit edition of OptiSystem.

New Component Libraries

Optical Sources

- **Spatiotemporal VCSEL:** A new laser model based on 2D spatially-dependent rate equations that account dynamically for the spatial interactions between the optical field and carrier distributions in the active layer.
- **VCSEL Laser:** An improved parameter fit method allows for a more accurate estimation of laser parameters from the LI and VI curve measurements.
- **Laser Rate Equations:** Includes the option to use the carrier lifetime parameter or the Recombination coefficients (Linear, bimolecular and Auger).
- **Laser Measured:** Allows loading the IM response file and calculates the damping factor and resonance frequency factor. Improved Parameter fitting and includes the option to use the carrier lifetime parameter or the Recombination coefficients (Linear, bimolecular and Auger).

Signal Processing

- **Electrical Reciprocal, Electrical Abs, and Optical Hard Limiter:** This new advanced component extends the capabilities of OptiSystem when designing OCDMA applications.
- **Pre-distortion:** A new component for pre-distortion of electrical signals. The component can inversely model an optical modulator's amplitude and phase characteristics.
- **Integrate And Dump:** This component creates a cumulative sum of the discrete-time input signal. It also resets the sum to zero according to a user defined time period.

- **Time Delay:** A new parameter defines whether to include the carrier phase shift or not.
- **Polarization Waveplate:** The new waveplate component offers control of the rotation angle and phase change of the polarization of optical signals.
- **Optical Downsampler, Signal Type Selector, Convert To Sampled Signals, Channel Attacher:** New components allows users to have more control over sampled, parameterized signals and noise bins.

Multimode Components

- **Spatial Connector:** A new parameter allows the user to select whether to use Fast Fourier Transform or the direct integration method of the Rayleigh-Sommerfeld integrals.
- **Mode Selector:** This new component converts a multimode signal into a single mode signal.
- **Multimode Fibers:** Users can select a new and more accurate method to calculate the differential mode delay based on the variation principle. User defined modal attenuation was also added to the multimode fiber.

Pulse Generators

- **M-ary Raised Cosine Pulse Generator:** A new pulse generator subsystem encapsulates an m-ary pulse generator and a raised cosine filter for CATV applications.

Filters

- **Optical and Electrical Analytical filters:** A new IIR filter engine for individual samples improves the accuracy of analytical filters such as Butterworth, Bessel and Chebyshev filters.

Amplifiers

- **SOA Amplifier Component:** Includes a new semiconductor optical amplifier (SOA) component that can be used to modulate or detect optical signals.

Visualizers

- **Constellation diagram:** Constellation and polar diagrams includes a new calculation engine to estimate Error Vector Magnitude based on symbol targets.
- **Optical Time Domain Visualizer:** A new parameter allows for the selection of an individual mode and polarization when working with multimode signals.

Integrated Design Environment

Script Editor: A robust text editor that is fully integrated with the Windows operating system, allowing it to take advantage of all system resources. It automatically uses color coding to separately identify instructions and operands, thereby making it easier to read and interpret the VBScript code.

Project Browser: A new project browser allows for much faster calculation and updates of components parameters, results and graphs.

Dispersion Maps: Accumulated dispersion was added to the list of signals parameters that can be traced when using lite monitors. It allows for plotting of dispersion maps. Users can also add dispersion maps to the report page.

Multiple Parameter and Results Optimization: A new multiple parameter and result optimization numerical engine and user interface.

Multiline Text Label Tool: Text tool was extended to allow for multiline text.

New applications and Validation Projects

Additional new applications and validation projects are in OptiSystem 7.0, covering:

- Broadband optical system based on a passive optical network
- Electronic equalization
- New modulation formats
- Radio over Fiber (RoF)
- Optical CDMA
- Coherent optical transmission
- Free-space optics

and much more.

Optiwave
7 Capella Court
Ottawa, Ontario, K2E 7X1, Canada

URL: www.optiwave.com