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Press Release

New Ridge Technologies: Second-Order PMD Key to Determine Network Outages

Reisterstown, MD – Dr. Henry Yaffe of New Ridge Technologies, LLC (www.newridgetech.com) and Dr. Daniel Peterson of Verizon Business (www.verizonbusiness.com) have recently published PMD tolerance measurements of multiple 10 Gb/s systems in the November 2006 Journal of Lightwave Technology. This is the first time that PMD tolerance data from commercial systems has been published.

The key conclusion of this publication is that both 1st and 2nd-order PMD should be measured when testing the PMD tolerance of components, transponders and systems.

In the experiments it was found that no two transponders had similar tolerance to 2nd-order PMD. This made it impossible to extrapolate full PMD tolerance from only the 1st-order PMD results.

In the data analysis, the PMD tolerance results were used to determine the expected network outage probability of the various transponders. Data for 1st-order-only tests was compared with data for 1st and 2nd-order tests. It was found that 1st-order testing tended to underestimate the outage probability of the network. In the case for one commercial 10Gb/s transponder, the 1st-order only tests underestimated the network outage by over an order of magnitude compared to the more sophisticated and more accurate 1st and 2nd-order measurements.

This may imply inaccuracies in system specifications relying solely on 1st-order-only testing. “Any network availability guarantees could be erroneously optimistic and service outages could be significantly larger than expected,” commented Henry Yaffe, president and founder of New Ridge. “This negatively affects both the OEM and the carrier.”

“I come across customers who believe that 1st-order measurements are sufficient. After showing them the measured data, they understand the problem”, said Yaffe. Even if some carriers do not yet require 1st and 2nd-order measurement, the OEM is still responsible for the operation and performance of their systems. New Ridge has simplified the measurement of 1st and 2nd-order PMD to be virtually identical to jitter or chromatic dispersion testing. The value of our PMD test solutions are obvious when compared to saving dBs of system margin or possible network outages,” added Yaffe.

Link to a copy of the paper published in The Journal of Lightwave Technology, Vol. 24, No. 11, November 2006, pp 4155-416, [“Experimental Determination of System Outage Probability Due to First-Order and Second Order PMD”, Henry H. Yaffe & Daniel L. Peterson, Jr.](#)

New Ridge will demonstrate 1st and 2nd-order PMD generation of the NRT-10033A, their 10 Gb/s PMD Source, and Total Outage Probability Calculator at the Optical Communications Conference, March 27-29, 2007 at booth #2685. The NRT-40133A, New Ridge’s 40 Gb/s source, will be demonstrated at the Adaptif booth, #1606, in conjunction with their A2000 Component Analyzer.

New Ridge Technologies’ president, Henry Yaffe, will be attending OFC/NFOEC. To arrange a meeting or demonstration contact Dr. Yaffe at +1 433-255-7360 or info@newridgetech.com.