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Reduction of four wave mixing efficiency in DWDM systems using optimal PMD

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Abstract

Investigation of polarization mode dispersion (PMD) effect on the performance of nonlinear optical transmission system, in terms of bit error rate and mixing efficiency was conducted. It shows an improvement in the system performance, in the presence of PMD. The effect of PMD was considered for different link lengths and the resulting effects on system performance were studied. It was demonstrated that fiber nonlinearities can be reduced in the presence of optimal amount of PMD, and have achieved average reduction in four wave mixing efficiency of 6.9 dB within the interval of - 18 to 4 dBm launch power, and maximum of 14.5 dB at 2 dBm launch power for an 80 Gbps non-return-to-zero dense wavelength division multiplexing system. OptiSystem software was used for the simulation.

Keywords

Author Keywords: Polarization mode dispersion; Four wave mixing; Dense wavelength division multiplexing

KeyWords Plus: OPTICAL COMMUNICATION-SYSTEMS; FIBER NONLINEARITY MITIGATION; COMPENSATION; DISPERSION; CARRIER; TRANSMISSIONS; RECOVERY; RECEIVER; OFDM; PSK

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- | | | |
|----|---|---------------------------|
| 1. | Title: [not available]
By: Agrawal, G. P.
Nonlinear Fiber Optics Pages: 177-225 Published: 2007
Publisher: Academic press, New York | Times Cited: 4 |
| 2. | Parametric analysis of four wave mixing in DWDM systems
By: Ahmed, Jameel; Hussain, Ashiq; Siyal, M. Y.; et al.
OPTIK Volume: 125 Issue: 7 Pages: 1853-1859 Published: 2014 | Times Cited: 9 |
| 3. | Linear and nonlinear impairment mitigation for enhanced transmission performance
By: Bertran-Pardo, O; Renaudier, J; Salsi, M; et al.
OPT FIB COMM C OMR1 Pages: 1-3 Published: 2011
[Show additional data] | Times Cited: 1 |
| 4. | LIMITATIONS ON LIGHTWAVE COMMUNICATIONS IMPOSED BY OPTICAL-FIBER NONLINEARITIES
By: CHRAPLYVY, AR
JOURNAL OF LIGHTWAVE TECHNOLOGY Volume: 8 Issue: 10 Pages: 1548-1557 Published: OCT 1990 | Times Cited: 414 |
| 5. | Blind, carrier, frequency offset estimation for noncircular constellation-based transmissions
By: Ciblat, P; Vandendorpe, L
IEEE TRANSACTIONS ON SIGNAL PROCESSING Volume: 51 Issue: 5 Pages: 1378-1389 Published: MAY 2003 | Times Cited: 23 |
| 6. | Improved single channel backpropagation for intra-channel fiber nonlinearity compensation in long-haul optical communication systems
By: Du, Liang B.; Lowery, Arthur J.
OPTICS EXPRESS Volume: 18 Issue: 16 Pages: 17075-17088 Published: AUG 2 2010 | Times Cited: 130 |
| 7. | Compensation of Quadrature Imbalance in an Optical QPSK Coherent Receiver
By: Fatadin, Irshaad; Savory, Seb J.; Ives, David
IEEE PHOTONICS TECHNOLOGY LETTERS Volume: 20 Issue: 17-20 Pages: 1733-1735 Published: SEP-OCT 2008 | Times Cited: 110 |
| 8. | SELF-RECOVERING EQUALIZATION AND CARRIER TRACKING IN TWO-DIMENSIONAL DATA COMMUNICATION-SYSTEMS
By: GODARD, DN | Times Cited: 1,345 |