Abstract

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FWM Mitigation in DWDM Optical Networks

In this paper, three optical communication systems have been proposed to mitigate Four Wave Mixing (FWM). Three techniques are used, namely low input power with high gain amplifier, a combined Optical Time Division Multiplexing (OTDM) and Wavelength Division Multiplexing (WDM) system, and the use of alternative circular polarization. The first technique involves reduction in input power to -20 dBm and then amplifying it 40 dB before demultiplexing. The second technique divides the input signal into four time slots and then combine them with a power combiner. In the third technique, the polarization of input pulses is changed before multiplexing into right and left handed circular polarization.Exhaustive set of simulations is carried out using Optisys. The performance analysis includes Q-factor, Optical Signal to Noise Ratio (OSNR), received power, Bit Error Rate (BER) and eye diagram.