Abstract

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DBPSK and DQPSK crosstalk in single-span WDM systems using DRA

A closed-loop formula is derived for the nonlinear crosstalk degradation due to self-phase modulation and crossphase modulation in a wavelength-division multiplexing system. The crosstalk is investigated in differential binary phase-shift keying (DBPSK) and differential quadrature phase-shift keying (DQPSK) schemes. The system under consideration is standard single-mode fiber with a single-span distributed Raman amplifier. The backward DBPSK shows a better performance with minimum crosstalk performance of 71%, as compared to backward DQPSK.