Pulse Extinction Ratio Improvement Using SPM in an SOA for OTDM Systems Applications

Improvement of pulse extinction ratio from 15-20 dB to approximately 40 dB of a 10-GHz pulse train is demonstrated using the self-phase modulation-induced spectral shift caused by a semiconductor optical amplifier (SOA). The improvement permits penalty-free optical time-division multiplexing to 40 Gb/s, and demultiplexing back to 10 Gb/s of an intentionally distorted signal. Without using the SOA the 40-Gb/s signal is not receivable.
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