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| **Title:** | Transmission Performance Analysis of Long-Haul WDM Network Employing Single Mode Fiber, Dispersion Compensating Fiber and Erbium Doped Fiber Amplifier | | |
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| **Abstract:** |  |
| The performance of Erbium Doped Fiber Amplifier  (EDFA), Single Mode Fiber (SMF) and Dispersion Compensating  Fiber (DCF) in a dynamic and reconfigurable Wavelength  Division Multiplexing (WDM) system has been demonstrated in  this simulation study. Eight WDM channels, each channel  running at 40 Gbps, are transmitted through SMF, DCF and  EDFAs. The effect of long distance transmission of optical signals  to the value of OSNR, Q factor and bit error rate (BER)  performance in the WDM optical network, keeping the Bit Error  Rate (BER) or eye pattern in acceptable range has been observed.  The WDM system trial using EDFA’s, SMF and DCF shows  acceptable but deteriorated eye patterns and bit error penalties  upto 420 km of transmission distance. Output power of the  system was kept almost constant (-12 dBm) for the whole  simulation process. Our simulation model can inhibit dispersion  to a minimum possible limit due to the application of DCF  (dispersion value is -85 ps/nm/km) along with the single mode  fiber (dispersion value is 17 ps/nm/km). Gain flatness is also  maintained by keeping the value of input power and output  power equal while performance of the network is analyzed. | |