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| **Title:** | Comparison of the Optical Signal-to-Noise Ratio (SNR) of WDM EDFA Chains for Different Light Sources | | |
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| **Abstract:** |  |
| A simplified analytical model for the calculation of the Signal-to-Noise Ratio (SNR) in Multi Wavelength Erbium-Doped Fiber Amplifier (EDFA) cascades is used to observe the effect of different wave length’s light sources on SNR. In this work, the wavelengths chosen for the analysis is 1330 nm and 1550 nm. It has been found that the SNR for 1550 nm is higher than 1330 nm wavelength. The effect of changing the amplifier spacing on SNR has been observed for fixed transmission length with different Gain-Loss differences (Δ(i)) and for different transmission lengths. For a 3000 km long transmission line with gain-loss difference Δ(i) = -0.15 dB, maximum SNR of 20.45 dB for 1550 nm wavelength and 19.8 dB for 1330 nm wavelength light sources has been found. These maximum SNRs occur for the amplifier spacing of 44.8 km. Maximum amplifier spacing to obtain a fixed SNR (15 dB) for different Δ(i) and variable transmission lengths has also been observed for 1330 nm 1550 nm. | |