Gain and Noise Figure Characteristic of EDFA by Four Stage Method

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Abstract

Fiber loss is a fundamental limitation in realizing long haul point-to-point fiber optical communication links and optical networks. One of the advanced technologies achieved in recent years is the advent of erbium doped fiber amplifiers (EDFAs) that has enabled the optical signals in an optical fiber to be amplified directly in high bit rate systems beyond Terabits. In this paper, an EDFA simulation program has been written in opt system to characterize Gain, Noise Figure and optical signal to noise ratio (OSNR). The four stage enhancement circuit has been designed and simulation studies for different types of pump power. Further, for the EDFA with comparatively better gain and noise figure spectrum, the pump powers are varied and a comparison of gain and noise figure with respect to wavelength is carried out.

References

1. Ricky Antony, "Performance analysis of different erbium doped fiber based directionally pumped wdm systems operating in optical wide-band" in International Journal of Engineering
Science and Technology (IJEST), Vol. 4 No.02 February 2012.


Index Terms

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Keywords

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