

TRIPLE PASS IN L BAND ERBIUM DOPED FIBER AMPLIFIER WITH FIBER BRAGG GRATING

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Abstract:

In this paper, we introduce four configurations of triple-pass Erbium Doped Fiber Amplifier (EDFA) with Passive erbium doped fiber (EDF) in L- band (1570 – 1600) nm. Then, the results of those configurations are compared regarding the presence and the absence of fiber Bragg grating (FBG) to analyze the gain and noise figure with different pump powers and input signal powers. For each configuration, three stages pump powers, (forward, bidirectional, and backward) at 225, 150, and 100 mW, respectively, are used; a laser diode pump that operates at 980 nm is applied per each stage. Moreover, two input signal powers, namely, –20 dB and –30 dB, are used with optimal EDF length for each case. This work has been simulated by Optisystem 13 software. This study shows a major enhancement in gain and noise figure for each stage.