ABSTRACT

Hybrid amplifier is a way to provide better performance because it can optimize the increase of spectrum bandwidth of DWDM systems, reducing losses due to the induction of non-linearity and prevent the use of high cost.

This final project analyze the optical amplifier SOA-EDFA Hybrid as a power amplifier (Booster), inline amplifier, preamplifier using a soliton pulse. As well as will analyze the influence bitrate and long link to the BER, the Q-factor. This simulation was designed with the number of 16 pieces of the canal, the wavelength on the windows region C-band (1510nm - 1560nm), 980 nm laser pump, 3 dBm input power, bandwidth of 20 Gbps and will be simulated using the software OptiSystem 7.0.

From the analysis conducted that the amplifier Hybrid SOA-EDFA has a correlation to the performance of DWDM systems, where available schemes preamplifier is the best among the four schemes Hybrid SOA-EDFA is designed for the scheme preamplifier value of the Q factor is worth the maximum that is equal to 9.7024 or 1.46494 x10-22 on BER with a length of 50 km and bitrate link 2.5 Gbps. While the value of the Q factor that is worth the minimum that is equal to 0 or 1 for BER values that occur in a system without reinforcement scheme is the condition of link length of 100 km to 200 km with a bitrate of 2.5 Gbps, 5 Gbps, and 10 Gbps.

So Schemes preamplifier is suitable for remote link. Scheme Inline Amplifier and Booster amplifiers can work to link distant yet perfomansinya bad because the value of the Q factor below the standard of eligibility. And without reinforcement scheme unfit for use because its performance is very bad.

Keywords: DWDM, Hybrid, EDFA, SOA, Soliton