

## ABSTRACT

Recent years, a new technology are being developed which is able to provide high speed data transfer for longer haul and save more cost rather than coaxial wire. This new technology is called fiber optic which uses light in sending data.

The transmission loss in fiber optic is one problem that needs to be solved because it can decrease power transmission level of a signal. It can reduce transmission haul. The installment of repeater or amplifier on the transmission line can be a solution in improving signal transmission power level. Several amplifiers that are usually used are Erbium Doper Fiber Amplifier (EDFA) and Raman Optical Amplifier (ROA).

This final project discusses about gain, ASE power and noise figure from the amplifier based on pumping level parameter, wavelength, input level, the length and PCE (*Power Conversion Efficiency*) value of fiber amplifier optic. The result shows that EDFA amplifier is better than Raman. With 0.5 mW input power and 0.16W pumping power, also with ASE effect, EDFA produces 31.39 dB of gain which is 21.38 dB better than Raman.

Key words : EDFA, Raman, *Gain*, ASE, *Noise Figure*, *Pump Power*, *Input Power*, PCE