ABSTRACT

Optical Transport Network has *vital function in optical network because as main element to support connection between networks on optical communications. One of them is multiplexing using Dense Wavelength Division Multiplexing (DWDM) with Array Waveguide Grating (AWG) as support medium. Long haul communication network need to be supported amplifier to reduce signal attenuation.*

In this final project is done performance test optical transport network with or without optical amplifier use optical simulator. Scheme without optical amplifier analyzed variation multiplexer and demultiplexer. While other scheme use AWG analyzed about single/hybrid optical amplifier mode serial to known optimal performance. All performance test are changed variation of link to Q Factor, BER, and output power.

Simulation results obtained performance of variations multiplexer and demultiplexer is not different. AWG as multiplexer and demultiplexer on 16 channels get maximum transmission without optical amplifier 50 km and BER 1,22x10-14 and Q Factor 8,062. AWG Scheme use single amplifier get EDFA is more optimum than Raman on 80 km with value of BER 2,26 x10^{-27} and Q Factor 12,23. The otherhand hybrid optical amplifier EDFA-Raman increase distance 100 km with value BER 1,91x 10^{-16} and Q Factor 9,66.

Keywords : DWDM, Long Haul, AWG, EDFA, Raman, Hybrid amplifier