

## **ABSTRACT**

EDFA amplifiers are needed for communication problems in Indonesia that are limited in distance and time. EDFA is an optical amplifier made by mixing erbium ions into optical fibers. In order for EDFA to be used efficiently, appropriate performance research is required for certain bit rates. Because if it is not used at the corresponding bit rate then the EDFA will not be efficient.

In this Final Task, there is a network transport performance test with 2 scenarios. The first scenario is without EDFA amplifier. While the second scenario is by installing EDFA amplifier and both are analyzed about bit rate variation. The test is done by changing the bit rate variation on bit error rate (BER) value parameter and Q Factor.

The simulation results obtained the performance on the bit rate variation in each scenario is relatively the same. In scenario with EDFA obtained the most optimal bit error rate (BER) and Q Factor results are bit error rate (BER)  $5,61 \times 10^{-84}$  and Q Factor 19,36 at bitrate 625 Mbps.

**Keyword :** *DWDM, EDFA, BER, Q Factor, Bit Rate*