

## **ABSTRACT**

*The development of telecommunication technology is very fast, the need for public services is increasing. So we need a network that can provide better performance. In this thesis, take a sample at PT. Telkom Graha Merah Putih Jakarta, this study aims to see the feasibility of the Cirebon -Tegal link DWDM technology created by simulation using the optisystem. Dense Wavelength Division Multiplexing (DWDM) as a fiber optic transmission technology by providing a large bitrate capacity and bandwidth in serving high information access. This technology utilizes different wavelengths ( $\lambda$ ) as channels with various types of information, then multiplexed and then passed on to one optical fiber transmission channel. In this study an analysis of the DWDM link Cirebon - Tegal fiber optic system was carried out, with a distance of 98 Km transmitted. 4 channels (4  $\lambda$ ), where each channel is spaced 100 GHz with a transmission capacity of 50 Gbps using the EDFA amplifier type. . The radiating power value will result in a decrease in the VALUE of BER but the rate of decline is not sharp, the value of the variation in input power of the transmitter provided will result in changes in the BER result. DWDM with input power values of 0,2,4 and 8 dBm the highest Qfactor values are 2.66208 and BER 0.00979162 while the lowest Qfactor is worth 1.55712 and BER 0.0104102.*

**Keyword :** *Danse Wavelength Division Multiplexing, Bit Error Rate, Quality Factor*