ABSTRACT

The development of wireless technology is increasing along with the high demand for data communication services. To realize this condition, triple play technology is needed, such as data, voice or video. The copper access network that has been used so far is considered to be unable to meet the needs of large bandwidths and high speeds required by access media that can meet this. Currently PT. Telkom is building optical access network infrastructure, namely FTTH (Fiber To The Home) which is integrated with GPON technology. In this Final Project the author implements XGPON technology to add capacity for the development of the previous technology. This design begins by determining the location on, data collection, and specifications of the equipment used in accordance with PT. Telkom which is then simulated using optical software. The specifications used for the Upsream and Downstream parameters in this design are, for the frequency used Upstream of 1260 -1280 dBm, for downsream of 1575 - 1580 dBm. Bite rate used for Upstream is 2.5 x 108, for Downstream is 10 x 108 .. The type of coding used is NRZ. The parameters contained in XGPON include Power Link Budget and Rise Time Budget, Bit Error Rate. The BER results obtained are 1.51055 x 10-005, the Qfactor results obtained are 4.17159. The results of BER and Qfactor are still not optimal, so it should be improved redesign.

Keyword: *FTTH, GPON, XGPON, Power Link Budget, Rise Time Budget, BER, optisytem*