ABSTRACT

The increasing public need for communication is followed by the increasing need for communication services that are more sophisticated, reliable and of better quality than before. Therefore, the need for fiber optic access network technology with a higher speed. At Pohon Mangga Asri Rancamanyar Residence location, Baleendah District, Bandung Regency, West Java received requests from customers because there was no FTTH network at that location.

At the customer's request by using the services of PT Telkom Access Regional West Java which is engaged in fiber optic construction, the Final Project will design a FTTH (Fiber To The Home) network based on GPON (Gigabit Passive Optical Network) technology at that location. The design of the FTTH network uses AutoCAD software in accordance with the design on Google Earth that has been made and the design simulation using the OptiSystem software.

From the results of calculations and simulations, the value obtained is said to be feasible for the Power Link Budget because the total attenuation calculation is not more than 28 dB while the calculated power value that will be received by the customer is not less than -28dBm. The Rise Time Budget calculation is said to be feasible because the value obtained is less than the time limit (tr) for NRZ coding. The Bit Error Rate (BER) parameter is said to be feasible because the value obtained is less than 10^{-9} and for the Q-Factor parameter the value is greater than 6.

***Keywords**: FTTH, GPON, ITU-T G984, Pohon Mangga Asri Rancamanyar, OptiSystem.*