

ABSTRACT

The rapid development of telecommunication technology makes the people want a fast and efficient telecommunication service, therefore it takes network technology that can replace the access network of copper assessed Not able to meet the needs of the community in the Kebondalem Adipala Residential. To resolve the case it is necessary to use FTTH (Fiber To The Home) network. FTTH network is the sender of The information in the form of light waves from the provider center to the customer's home by using fiber optic as a medium of conductor that can be used in housing Kebondalem Adipala As a means of supporting triple play services (Data, Voice, Video) provided by PT. Telkom. The research of this final task designed the FTTH network from STO to ONT customers and conduct simulations using the software Optisystem to analyze calculations of Power Link Budget, BER and Q-factor according to the message ITU-T G. 984. Based on the results of the calculations, it is known that the average value of the customer's receiving power is -21,16 dBm and the acceptability based on simulation results is equal to -23.79 dBm, based on these results the calculation and simulation results differ only by 2 dBm not too far different. Based on the simulation average BER value of $2,39 \times 10^{-58}$ and the result of the average value of Q-factor is 16,86 which means that the design FTTH Network in the housing Kebondalem Adipala in accordance with The standard ITU-T G 984.

Keywords: FTTH, GPON, Power Link Budget, Bit Error Rate, Q-Factor.