ABSTRACT

(Fiber To The Home) FTTH is an optical network from the center to the customer using optical fiber as a delivery medium. The network accesses adequate internet needs such as the design of the Bumi Kaliori Permai Banyumas residential area. The housing has long been established, but there is no FTTH network in the housing. The FTTH design carried out on the housing uses technology that has been developed at Telkom Indonesia, namely GPON technology (Gigabit Passive Optical Network) which was developed from ITU-T G.984 with a speed of 2.5 Gbps. This technology uses fiber optics with a large bandwidth capacity, fast access, and triple play application support (voice, data and video services). In this final project, the design is done by Telkom standard which refers to ITU-T G.984 using optical system simulation 0.7. This design is carried out with active devices such as OLT, ODC, ODP, and ONT using Tx 2 dBm power. The results of this design use the calculation parameter system with a power link budget with a result of 25,052 dB for the farthest distance and the result with the closest distance is 24,045 dB. The BER results are 1.0481 × 10^{-26} and for the Q Factor results 10.6328 the results of these values meet the BER standard because it is more than 10^{-9}, for the Q factor value is already good because the value is more than 6 dBm.

***kata kunci** : FTTH, GPON, power link budget, BER, Q factor*