ABSTRACT

PT. Telkom Indonesia began implementing a modernization program for access networks, namely by replacing the copper network and implementing the Fiber To The Home (FTTH) access network to the Bungur Asih Singaparna housing, Tasikmalaya district. The FTTH access network in the Bungur Asih housing complex in Singapore, Tasikmalaya district is still new and there is no specific analysis for the performance of optical networks that have been implemented in the housing complex.

This Final Project analyzed the performance of FTTH networks at STO Singaparna into the Bungur Asih Singaparna housing Tasikmalaya district which has been carried out by the design optimization process using a Production Tool (AlPro) device which was previously owned by PT Telkom by based on the calculation of network feasibility parameters namely Power Link Budget , Rise Time Budget (RTB), and Bit Error Rate (BER) and based on measurement, simulation, and calculation analysis on distribution network links. In the FTTH network in the Bungur Asih Singaparna housing, Tasikmalaya district has a centralized GPON device installed at STO Telkom and has 1 ODC, 10 ODP and 78 ONT devices using a 1: 8 passive splitter.

The link test results prove that the network that has been implemented by FTTH meets network standards determined by PT Telkom with a BER value of 2.666x10-111 for the downstream side, at a wavelength of 1310 nm the power link budget is -23,932 dBm and rise time budget at 0.26 ns at a wavelength of 1490 nm the power link budget value is -8,882 dBm and the rise time budget is 0.25 ns. Based on the measurement analysis and calculation in the distribution link there are differences in the results of calculations and simulations caused by the absence of system margin values in the simulation while the implementation of the received power values is not too far from the simulation results which means the network optimization results are in accordance with the design.

Keywords : ***GPON, FTTH, Link Power Budget, Rise Time Budget***