

## ABSTRACT

Optical fiber is one of the transmission media that has a large bandwidth and can overcome problems for the needs of triple play services (Data, Voice, IPTV). In this final project the author will design a Fiber To The Home (FTTH) access network in Optisystem software to find out good performance on the services provided by PT. Telkom. The location used as a case study is the customer's home in the Tanah Abang area, located in Central Jakarta. In this final project the author starts from collecting the necessary data such as parameters, configuration and distance, then designing the Fiber To The Home (FTTH) Network in the Optisystem, then analyzed based on the feasibility parameters of a network that is the Power Link Budget that meets PT. Telkom. The received power from OLT-ONT 1 is -18,832 dBm, OLT-ONT 2 is -18,868 dBm, OLT-ONT 3 is - 18,760 dBm, OLT-ONT 4 is -18,688 dBm, OLT-ONT 5 is 18,452 dBm, OLT-ONT 6 -18,563 dBm, OLT-ONT 7 is -18,651 dBm, and OLT-ONT 8 is -18,492 dBm. From the calculation of the link power budget, the total acceptability of the results obtained from manual calculations and simulation results are in accordance with the standard Key Performance Indicator (KPI) set by PT Telkom which is -28 dBm.

**Keyword:** *Fiber To The Home (FTTH), Optisystem, Power Link budget.*