ABSTRACT

Turangga Area located in South Bandung which is full of housing and have school facilities. PT. Telkom planned that in 2013 around Bandung have been using optical fiber as transmission media. Technology that can be used to implement that plan is FTTH (Fiber To The Home) using GPON technology (Gigabit Passive Optical Network) which can support triple play service.

This final project has been predict about demand forecasting for next 10 years and then carried out FTTH network with GPON technology by looking at parameters such as the Power Link Budget, Rise Time Budget, and attenuation. The value of the FTTH network parameters will be compared with the standard value that is owned by PT. Telkom Indonesia as a company that will build a FTTH network in Turangga Area.

The result of forecasting demand show that for packet 384Kbps use quadratic model with bandwidth needed is 131.328Mbps. For packet 512Kbps use quadratic model with bandwidth needed is 175.616Mbps. For packet 1Mbps use exponential growth model with bandwidth needed 444Mbps. For packet 2Mbps use quadratic model with bandwidth needed 48Mbps. So the total bandwidth requirement in Turangga Area in 2021 is 798.944Mbps. The results show that for the design of Turangga Area using 3 pieces of ODC and 177 pieces of ODP, and 1161 pieces of ONT. Power Link Budget test result show that attenuation that produced for uplink is 21.49771 dB and for downlink is 21.1914534 dB, the attenuation is still below the standard GPON according to ITU-T G.984 standard of 28 dB or Telkom issued by 26 dB. Rise Time Budget test result for downlink with a bitrate of 2.4Gbps, with furthermost customers is produced total time 0.25 ns. This total time is below than the value of time system 0.2917 ns. For uplink with a bitrate of 1.2 Gbps, with furthermost customers is produced total time 0.25 ns. This total time is below than the value of time system 0.5833 ns.

Keyword : Turangga Area Bandung, FTTH, GPON, *Forecasting Demand*, *Power Link Budget, Rise Time Budget*