ABSTRACT

Dago Asri and Cisitu Residence are one of luxurious residential in Bandung and have big potensial need and speed of access. PT. TELKOM targets that in 2013 will replacing copper access network is considered inadequate with fiber optic access network to homes that called Fiber To The Home (FTTH) for Bandung City.

This final project has been predict about demand forecasting fo next 10 years and then carried out FTTH network using GPON (Gigabit Passive Optical Netwotk) technology in Dago Asri and Cisitu Indah by looking fairness network parameters and transmission quality such as Power Link Budget, Rise Time Budget, Signal-To Noise-Ratio, and Bit Error Rate.

The result of bandwitdh needed forecasting show that for 384Kbps packet use quadratic model with bandwitdh needed is 48 Mbps. For 512Kbps packet use quadratic model with bandwitdh needed is 110.592 Mbps. For 1Mbps packet use quadratic model with bandwitdh needed 208 Mbps. For 2Mbps packet use quadratic model with bandwitdh needed 346 Mbps. So the total of bandwitdh requirement in Dago Asri and Cisitu Indah residence in 2022 is 712.592 Mbps. The results show that for the design of Dago Asri and Cisitu Indah Bandung using 3 pieces of ODC, 105 pieces of ODP, and 725 pieces of ONT. Power Link Budget test result produced that total attenuation for uplink is 23.637 dB and for downlink is 23.351 dB, both of them are still below the GPON (ITU-T G.984) standard of 28 dB. Rise Time Budget test result produced total time is 0.21 ns for uplink, that result is still below the time sistem of 0.2917 ns and for downlink produced total time is 0.21 ns, that result is still below the time sistem of 0.5883 ns. Transmission quality test result produced that Signal-To-Noise-Ratio value is 16.7 dB that produced Bit Error Rate value is zero, this result is still above the optic communication system that have minimum Bit Error Rate is 10^{-9}.

Keywords : Dago Asri And Cisitu Indah Resindence Bandung, FTTH, GPON, Demand Forecasting, Power Link Budget, Rise Time Budget, Signal-To-Noise-Ratio, Bit Error Rate