

ABSTRACT

The needs and ease of service in the field of information and communication technologies such as data , voice , video and images is growing every year . The development of this type service is called triple play (voice, data, and video) . GEPON is fiber optic network topology that allows the use of point-to - multipoint based on Ethernet and 1.25Gbps data rate support. Graha Natura Surabaya have plan to use the technology services that support triple play services to customer needs .

In this final project design analysis of fiber to the home network (ffth) using GEPON technology in housing Graha Natura Surabaya , in order to determine the feasibility of the system performance by looking at some of the parameters associated therein . This design started with collecting information and housing data data plan customer service Graha Natura Surabaya . Then the results of the collection of information to design FTTH network by specifying the device specifications , the number of devices , and laying devices .

After performing at the FTTH network design can use the 9 Main POS / ODC (1:8) , 70 Sub POS / ODP (1:8) and 512 ONU . Total bandwidth required in this design is 7233.3 Mbp . Based on the analysis of the feasibility of the system link power budget total attenuation obtained at the farthest distance is equal to 28.7217788 28.0022235 dB for dB for downlink and uplink . It is still within the tolerances specified IEEE803.2ah by 29 dB . The test results for Rise Time Budget is farthest ONU downlink direction resulted in a total time of 0.368214174 ns . For the uplink direction furthest customers generate a total time of 0.367711689 ns . The time value is below the NRZ system time of 0.56 ns . System performance test results the S / N of 22.71803322 dB which results of $6.038141487 \times 10^{-10}$ BER . It is still within tolerance as an ideal BER is equal to 10^{-9} .

Kata Words: FTTH, GEPON, Ethernet, LPB, RTB, S/N, BER