

ABSTRACT

The *Fiber To The Home* network plays a very important role in helping the performance of the surrounding community in village offices, schools and homes. This research will be studied with the design of FTTH based on *Ethernet Passive Optical Network (EPON)* technology in Cipondoh District.

With the initial sample plan, there are 435 customers for 8 villages in Cipondoh District. For this design design requires 1 STO, 1 ODC and 6 ODP. The methodology used in this study is to simulate sampling the data obtained so that it can be known whether the network is feasible or not to be implemented.

Simulation of PON network design using Opnet Modeler which is then observed on QoS parameters and compared with the standards issued by ITU-T. The QoS value obtained is very good delay in each service and is included in the good category of under 150 ms for all services. The percentage of *packet loss* is 0 % for telephone and data services, while for video services it is 0.0000061%. For the average *jitter* obtained a value of -0.09 μ s on telephone services and 0.0025 μ s on video services and is included in the good category. *Page response time* for data services is included in the good category with a value of 468.4 ms.

Keywords: Kecamatan Cipondoh, *Fiber To The Home*, *Ethernet Optical Network (EPON)*