

## **ABSTRACT**

Along with technological developments in the digital era, especially telecommunications technology, it encourages people to get simple and efficient services. The growing demand for public services requires telecommunications equipment to accommodate all services. Today's service needs are not only related to voice, but also data and video. Therefore, you need a reliable network that can provide good performance and adequate data transfer rates. In this final project, we will carry out FIBER TO THE HOME (FTTH) DEVELOPMENT PLAN ANALYSIS IN PEKALONGAN CITY USING GIGABIT PASSIVE OPTICAL NETWORK (GPON) TECHNOLOGY. GPON (Gigabit Passive Optical Network) technology is an access network technology that uses optical fiber as its transmission medium. GPON was developed and standardized by ITU-T. GPON technology complies with ITU-T G.984.2 standard. GPON technology has high data rates of 1.2 Gb/s upstream and 2.4 Gb/s downstream. In addition to design, direct measurement using OPM is also carried out in this final project to analyze whether the network is feasible and meets the standards set by the company. The results of the design are evaluated for the feasibility of the system by calculating the Power Link Budget (PLB).

Keywords: Fiber to the Home (FTTH), Gigabit Passive Optical Network (GPON) and Power Link Budget.