

## INTISARI

Perkembangan teknologi dibidang telekomunikasi mengalami perkembangan yang sangat pesat, pada era digital saat ini kebutuhan akan informasi sangatlah penting baik berupa suara, data, gambar maupun video. Maka untuk memenuhi kebutuhan yang begitu besar diperlukan kualitas jaringan yang memiliki kemampuan yang baik untuk menunjang performansi jaringan. Jaringan *Fiber To The Home (FTTH)* merupakan jaringan yang menggunakan serat optik sebagai media penghantar transmisi data, sehingga mampu memberi performansi transmisi data yang sangat baik, *Fiber to the home* terintegrasi dengan *Gigabit Passive Optical Network (GPON)*. *Sentral Office (STO)* Pakem, Sleman, Yogyakarta merupakan penyedia layanan fttth PT. Telkom untuk melayani daerah Pakem dan sekitarnya.

Dalam penelitian tugas akhir ini, dilakukan analisis performansi jaringan fttth di STO Pakem dengan parameter *Link Power Budget*, *Rise Time Budget*, *Signal Noise to Ratio* dan *Bit Rate Error*. Dimana dilakukan pengukuran terhadap empat sample pelanggan dari STO Pakem. Diketahui bahwa hampir semua sistem jaringan tersebut telah andal dan sesuai dengan standar yang ada, kecuali pada jaringan sistem pelanggan tiga dan empat untuk parameter *Signal Noise to Ratio* dan *Bit Rate Error*, yang masih dibawah standar yang ditetapkan oleh ITU.

Kata Kunci : Analisis FTTH, *Link Power Budget*, *Rise Time Budget*, *Signal Noise to Ratio*, *Bit Error Rate* dan *Gigabit Passive Optical Network*.

## ABSTRACT

Technological developments in the telecommunications sector have experienced a very rapid development, in the current digital era the need for information is very important in the form of voice, data, images and video. So to meet such a large need, it is necessary to have a network quality that has good capability to support network performance. Fiber To The Home (FTTH) network is a network that uses optical fiber as a medium for transmitting data, so as to provide excellent data transmission performance, Fiber to the home is integrated with Gigabit Passive Optical Network (GPON). Central Office (STO) Pakem, Sleman, Yogyakarta is a fthh service provider of PT. Telkom to serve the Pakem area and its surroundings.

In this final project, an analysis of fthh network performance in STO Pakem with Link Power Budget, Rise Time Budget, Signal Noise to Ratio and Bit Rate Error parameters is applied. Where measurements were taken on four customer samples from STO Pakem. It is known that almost all of these network systems are reliable and in accordance with existing standards, except for customer systems for three and four systems for Signal Noise to Ratio and Bit Rate Error parameters, which are still below the standards set by ITU.

Keywords: FTTH Analysis, Link Power Budget, Rise Time Budget, Signal Noise to Ratio, Bit Error Rate and Gigabit Passive Optical Network.