

ABSTRACT

In this digital era, there is one thing that cannot be separated from everyday life, namely the use of the internet. The internet can make it easier to access data, especially during the Covid-19 pandemic. Based on the results of the survey, there is a correlation between the number of residents and the need for high data access. Therefore, the government provides convenience by building a Point of Presence (PoP) network infrastructure.

The design of the Point of Presence (PoP) network by determining 2 areas, namely Serang District in Serang City and Cikande District in Serang Regency using a digital earth map and simulated using an optical simulator application. There are two design scenarios, the first is from Transmitter to Receiver with Optical Amplifier, the second is without Optical Amplifier.

The design of the Point of Presence (PoP) network from the Cikupa Automated Telephone Central (STO) to Serang District in Serang City has a distance of 41.1 km from the Automated Telephone Central (STO) Cikupa using Optical Amplifier calculation results Bit Error Rate (BER) is worth $3,667 \times 10^{-9}$ and the simulation result Bit Error Rate (BER) is worth $9,547 \times 10^{-8}$. Then the design of the Point of Presence (PoP) network from the Cikupa Automated Telephone Central (STO) to Cikande District in Serang Regency with a distance of 18.2 km from the Automated Telephone Central (STO) Cikupa without using Optical Amplifier produces Bit Error Rate (BER) is 5.612×10^{-9} and the simulation result Bit Error Rate (BER) is 9.34181×10^{-7} .

Keyword : Point of Presence (PoP), Optical Amplifier, Bit Error Rate (BER)