

ABSTRACT

Digitalization in Indonesia today is moving rapidly, especially since the Covid-19 pandemic almost all activities are carried out online. A good internet is very necessary in carrying out online activities and digitization. Data service providers must build network infrastructure to meet the high demand for internet services.

This research was conducted in Bandar Lampung City to design a Point of Presence and to test the performance of the design. There are two performance testing schemes, namely calculations using computational methods and simulations with optical simulators with two scenarios, namely segments with optical amplifiers and without optical amplifiers.

This research will design two new Point of Presence, namely in Kedaton and Sukarame. Performance testing was carried out on segments with optical amplifiers, namely Tanjung Karang CO–Kedaton POP. The results for the calculation scheme were $BER\ 8 \times 10^{-14}$ and for the simulation scheme $BER\ 5.96 \times 10^{-7}$. For the segment without optical amplifier, namely Kedaton POP–Langkapura CO, the results for the calculation scheme are $BER\ 5.56 \times 10^{-9}$ and for the simulation scheme $BER\ 7.01 \times 10^{-7}$.

Keywords: *Digitalization, Internet, Point of Presence, Optical Amplifier, Performance Testing.*