

## ABSTRACT

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*Technological developments are now increasingly advanced, especially in the field of telecommunications. Communication technology through fiber optic is one technology that is widely used as data transmission between sender and receiver in a network that allows between users to communicate with each other with high data rates. And in sending the data needed a data security so that data is safe at the time of delivery, to overcome this matter then used technique of fiber optic network amplifier (optical amplifier). In this case study using a software that is Optisystem as a simulation for network design. The result of simulation of network security improvement using variation of signal amplifier that is result of BER is smaller if tapping is increased and loss is smaller so that network looks better than if compared without using network security.*

*Keywords: Fiber optic, Optisystem, BER, loss*