

ABSTRACT

Free Space Optic (FSO) is optical based communication without using cables. Previously there was an optical technology that uses radio frequency (RF) as its carrier signal, namely Radio over Fiber (RoF). But RoF has several disadvantages such as electrical interference, distortion, and large noise. Therefore Free Space Optic (FSO) technology was created. FSO is also a technology for backup networks. For example, if there is an earthquake, then the optical cable is damaged, immediately be replaced with an FSO that does not use cables.

Free Space Optic (FSO) is an optical-based communication technology whose light propagation takes place in the open. This technology makes use of the Line Of Sight (LOS) and full duplex work systems. In general, this FSO uses LASER as its light source. The FSO has several advantages such as lack of interference, easy maintenance, and high speed.

In this study, it was simulated and analyzed using Subcarrier Intensity Modulation (SIM) on Kim and Kruse's channel models, with the use of four wavelengths and variations in visibility. After testing with SIM, it compared with OOK-NRZ and OOK-RZ modulation with the same parameters and channels. BER using SIM is better than using OOK-NRZ and OOK-RZ modulation, and at wavelengths of 1550 nm with values of 10^{-98} on Kim's model channel and 10^{-73} on the Kruse model canal.

Key Words: *FSO, SIM, Kim, Kruse, BER.*