ABSTRACT

NG-PON2 is the most recent technology in the field of fiber optic communication. Even so in textit Next Generation Gigabit Passive Optical Network Stage 2 NG-PON2 itself there are still non linear effects that can reduce performance, one of which is textit Four Wave Mixing (FWM) which is a mixture of 2 or more wavelength.

This research focuses on the effect of the Optimum Unequality Channel Sepparation (OUCS) method by using Optimum Golomb Ruler (OGR) to the FWM effect on NG-PON2. Research is carried out by using software to simulate conditions on the system.

The results obtained in this study include the value of Power Received after using OGR has increased by 0.17-0.23% with the largest value of -22.22 dB, Signal to Noise Ratio (SNR) value after OGR applied has increased with the greatest value 36.16 dB, Q-Factor Value and Bit Error Rate (BER) after OGR implementation have increased at a distance of 25-30 km with the largest values for 14.66 and 4.61402×10^{-49} respectively.

Keywords: NG-PON2, Four Wave Mixing, Optimum Golomb Ruler