

ABSTRACT

Optical fiber communication has many advantages such as low loss transmission, wide bandwidth, not been influenced by electromagnetic, and data security. With it's advantages, improvement the performance of optical fiber communication always be increase.

One of the method that is used to determine proper a fiber optic network is related to bit rate is rise time budget. The number of rise time system must be more small with 70% bit NRZ or 35 percent bit RZ, So that it was needed to reduce kompensator dispersion great dispersion to be able transmit bit rate according to be desired. In this simulation will be done analysis of the placement kompensator dispersion to performance of optical fiber network between STO Lembong and STO Cianjur as far as 67.46 Km using kompensator dispersion Fiber Bragg Grating using software optisystem.

Based on the result of simulation, concluded that the placement dispersion kompensator wit non-linear effect affected a network performance. On first scenario at bit rate 10 Gbps, longer distance placement dispersion kompensator to transmitter, the BER and Q-factor is better, the best performance at distance 52,642 Km with BER value is $2,31822 \times 10^{-12}$ and Q-Factor value is 6,91173. The worst performance at distance 4,804 with BER value is $3,66458 \times 10^{-12}$ and Q-Factor value is 6,84697. While at bit rate 40 Gbps, smaller distance placement dispersion kompensator to transmitter is better. The best performance at distance 4.804 km with BER value is 0,007568 and Q-Factor value is 2,29233 while the worst performance at distance 52.642 with BER value is 0,008145 and Q-Factor value is 2,2629. On second scenario, placement dispersion kompensator without non-linear effect results BER and Q-factor value are same at every distance. At bit rate 10 Gbps BER value is $3,32078 \times 10^{-12}$ and Q-Factor value is 6,86077. While at bit rate 40 Gbps BER value is 0,008153 and Q-Factor value is 2,26279. This is because in second scenario there is no non-linearitas that doesn't raise another a few new signals.

Keywords : dispersion, kompensator dispersion.