

ABSTRACT

Submarine cable is an example of backbone link connection that installed under the sea. The communication system is used for connecting telecommunication network between islands and countries . Based on the number of islands that should be connected by telecommunication network, then required supporting devices such as Branching Unit (BU) to meet the needs of customers capacity in each landing point.

The research will analyze the performance of planing configurations in submarine cable system that contained in Indonesia Global Gateway (IGG) link that has 80 wavelength in the system. There are 2 configurations in this research, the first is branching configuration that OADM BU, booster, in-line amplifier, and pre-amplifier, and the second is festoon configuration that only use booster, pre-amplifier for gain, and without BU. From the simulation results will be analyzed to power receive, bit error rate (BER), and Q-Factor. The analysis is also based on a predetermined distance of 374 km, 390 km, 540 km, 572 km, 580 km, and 617 km.

Based on the simulation result, the result of branching configuration has better performance than festoon configuration. It's based on the lowest BER result of the branching configuration is $2,76 \times 10^{-115}$ and the highest Q-Factor value is 22,78, while the lowest BER for the festoon configuration is $2,04 \times 10^{-15}$ and the highest Q-Factor is 7.85. Also based on power receive, branching configuration also has a higher value of -0,203dBm, while the festoon configuration has a value of power receive -17,78 dBm. For the rise-time budget analyze, the value of system rise-time is lower than NRZ (Non-Return-to-Zero) rise-time which is max value is 70 ps.

Keywords : Submarine Cable System, Branching Unit, OADM, Festoon