ABSTRACT

The use of long-distance transmission is determined by attenuation, dispersion, and non-linear effects. Dispersion causes information or signals to accumulate so that in reaching the maximum distance and maximizing the level of a signal, the thing that can be done is to compensate for the effect of dispersion. Dispersion Compensating Fiber (DCF) is the most suitable method that can be applied to dispersion compensation. Dispersion is also an important role in designing an optical transmission system in the Dense Wavelength Division Multiplexing system that allows several numbers of channels or channels to transmit through a single fiber. The use of DWDM can have interruptions in the process, namely dispersion and non-linear effects. The depth of analysis was obtained by DCF performance testing for the Dense Wavelength Division Multiplexing System in channel spacing experiments with distances of 70, 80, 90, 100, 110 and 120 Ghz and using variations of 8 channels through Optisystem software looking at the BER Analyzer and Q-Factor and obtained results that the greater the variation in distance given, the better the simulation results will be. Based on the performance of the system, it was found that the simulation was optimal at a variation of 90 for and 100 Ghz. Ber drinking value obtained was 1.10494x10-31 and the maximum value was 0.000100015 with a standard of 10-12 Q-factor value obtained a minimum result of 3.55901 and a maximum of 11.6303 with a standard according to ITU-T 7.

Keywords: *Fiber Optic, DWDM, DCF, Symmetrical DCF.*