

ABSTRACT

With the increasing need for communication and the diversity of communication services such as: voice, data, video, multimedia, and internet; led to a trend of high-speed communications services to be realized. This trend can be realized with a reliable communication system, which has a large capacity of information. One of which is a fiber optic communication systems.

For transmitting information signals through an optical communication system, the signal is modulated using an optical modulator firstly. LiNbO₃ Mach Zehnder modulator is an optical modulator that has been extensively developed and widely used in communications systems because of its reliability. To modulate the signal, Mach Zehnder modulator requires a driving voltage from the voltage of information signal. Information signals used in this system are video and audio signals which are formed in NRZ Unipolar pulses and then superimposed on the optical carrier signal.

Based on the simulation of Mach Zehnder modulator, it is obtained that the value of driving voltage for single-sided configuration at the electro-optic coefficient r_{13} and r_{33} , respectively are 4.23 volt and 1.266 volt. While, the value of driving voltage for push full configuration is half of the voltage value at the single-sided configuration that is each 2.155 volt and 0.633 volt. For both of modulator's configuration (single sided and push full), the intensity at the output of modulator is the same one, at 2 watts.

Keywords: Modulator Mach Zehnder, lithium niobate modulator, elektro-optik, modulasi optik