ABSTRACT

Frequency Modulation (FM) Modulator is part of the FM radio transmitter which have function as a modulating signal information from stereo encoder. In this Final Project, the FM modulator is designed to work at a frequency of 107.7 MHz and will be used as a media communication in the campus area. In this final project, the FM modulator is designed by using Phase Locked Loop (PLL) system to produce the more stable frequency. To make an FM modulator with PLL system is required a crystal oscillator-type Voltage Control Oscillator (VCO), VCO is the advantage of using this component is able to generate different frequencies depending on the input voltage. VCO is the advantage of using this component is able to generate different frequencies depending on the input voltage. FM Modulator with PLL is divided into two parts, namely the exciter and PLL control unit that works as a controller at the modulator output frequency. In this Final Project, FM modulator is capable of producing 1 Watt output power with input voltage from 12 volts to 13.8 volts, in the testing of FM modulator system with PLL is capable producing a stable frequency and works at some selected frequencies, while the quality of its own radiance distance is determined by the size strengthening amplifying in booster as well as the shape and height of the antennas used.

Keywords: Frequency Modulation (FM), Phase Locked Loop (PLL), Booster, Voltage Control Oscillator (VCO).