ABSTRACT

Wireless Local Area Network (WLAN) is a telecommunications technology, a broadband wireless access technology for high-speed information transmission. WLAN technology can be realized good, if the supported device have a reliable transmission for data transmission process. These include the existence of an amplifier in the transceiver device, which functions as a power amplifier so that can multiple the power. The other example is mixer. Mixer that serves as a mixing frequency from the RF amplifiers and frequency of the local oscillator. Inside Amplifier and Mixer must have the device that can used in high speed data transmission. It needs coupler that have a good ratio. Coupler is used to split the power and the transmission of the power can be good because of that. For example is lange kopler.

In this final project will be discussed regarding the design and prototype realization of lange coupler based on strip at the WLAN frequency of 2.4 GHz. This Kopler can easily get the value of 3 dB coupling ratio, with a wide bandwidth. In addition, the phase differences between the two outputs is 90°, thus also called quadrature coupler type. But there are some drawbacks to this coupler, among the lines that have a very narrow path and this kopler difficult to fabricate using wires to connect between lines.

This final project produce prototype of lange coupler with the appropriate specifications such as center frequency at 2.4 GHz, *signal division* -3.47 dB, *input return loss* -23.8 dB, and *isolated port* -27.27 dB. This final project is expected to be a reference to the realization of WLAN transceiver device and learning about transmission in the microwave.

Keywords: lange coupler, wide bandwidth, WLAN.