# Abstract

*PLC channel is a bad transmission media. The characteristics of this channel are too much noise, multipath propagation, time varying low impedance, distortion and any other. in that channel also exist 50 Hz power signal with high amplitude so that can break the transmission set if directly connected to the channel without adapter circuit.*

*One solution to solve that problem is by using coupling circuit. The function of this circuit are dumping the power signal and escaping the information signal from and to PLC channel. Another function is giving isolation of two different system.*

*This Final Project discuss about design of optical couplier and examination performance system and also compare to magnetic coupler performance. This system is like a prototype of digital signal transmitter and receiver with FSK modulation that is a simulation for the later real system. This research limits the problem in Cenelec Band EN 50065 spectrum in PLC channel.*

*The result is good enough that the bandwidth of optical coupler is wide (900 kHz) although not the same wide with magnetic coupling (2.24 MHz) and also has an immunity to noise. That can make an opportunity to develop this research for the vary and useful application next time.*

*Keyword: Magnetic Coupling, Optic Coupling, Noise, Bandwidth*