ABSTRACT

Along with the development of community needs for the technology that more efficient, wireless technology has developed very fast. People consider the performance of the wireless network is efficient but there are many factors that affect the quality. Wireless networks typically use the electromagnetic signal that has disadvantages which is wave interferences, low capacity of sending an information, the use of energy is less efficient as FM radio communication which is still used in the general public. Because of that, the Visible Light Communication (VLC) technology has been developed to improve the disadvantages of wireless network. Visible Light Communication (VLC) is a communication system using visible light as a form of information signal. With VLC technology the disadvantages of wireless networks can be better. Because the nature of light used by VLC has a high speed, can be resistant to interference radiation of electromagnetic waves, the energy that used more efficient, and etc.

In this final task the design of VLC system consists of a transmitter and receiver blocks. In the transmitter there is a Light Emitting Diode (LED) as a light source that emits a signal, which is coupled with FM radio signal receiver system using Hex3653 AV2B kit module. Then in the receiver part consists of photodetector to convert light signals into electrical signals and the headphone as a tool to generate sound from the signal that has been obtained. Inside the transmitter and receiver is equipped with amplifier circuit.

From the test results, VLC system can send audio signal from broadcast FM radio with a maximum distance of 450 cm with an output signal output voltage of 0.011 Volt and attenuation of -12.49 dB. At a distance of 5 meters the sound is not heard at the output signal voltage of 79.9 mV with an attenuation value of -16.13 dB.

Keywords : VLC, LED, transmitter, receiver, FM radio, headphone.