

ABSTRACT

The amount of land resources is currently running low, this is due to the increasing need for resources needed by humans, therefore underwater communication research is very needed for develop and discover natural resources buried in water which can become other alternatives of natural resources in the future. Sound Navigation and Ranging (SONAR) is an underwater communication technology that is still in use today, SONAR has a low bit rate so that it cannot communicate in real-time and cannot transmit data in the form of images or sound, after that underwater communication technology was developed again by using Visible Light Communication (VLC) for data transmission in the water, but the use of ultra-high bandwidths from the optical system is very vulnerable to water turbidity, and perfect line-of sight is required when communicating.

Radio communication is one of the wireless communications that can transmit real-time data using electromagnetic waves, but the frequencies used in radio communication are very vulnerable to attenuation that occurs underwater, therefore the research in this final project is about the performance of radio signal communication using low frequency frequency modulation (FM) techniques and analyze the attenuation that occurs when communicating in the air as a comparison for testing attenuation in water.

The results obtained from testing and measuring the attenuation of FM radio waves in the air use a frequency of 833.3 kHz with a distance of 10 cm to 12 m, there is an percentage of attenuation is from 70.4% to 91.25% when the transmitter and receiver are placed in line of sight (LOS).

Keywords : *Underwater Communication, Frequency Modulation, Radio Waves.*