

ABSTRACT

Indonesia is a country with two-thirds of its territory in the form of water, and has a sea where various natural resources can be managed. Many Indonesians also depend on these natural resources for their livelihoods. Various professions in the marine sector have emerged, and one of them is as a diver. Divers certainly need a means of communication to be able to send information to people above sea level while being observed under the sea, especially when observing at a sufficiently deep depth from sea level. However, the specifications for communication tools under the sea are different from those above sea level. This is caused by various factors, for example underwater attenuation that is greater than at sea level. This is a consideration in making communication tools for underwater, which can overcome this because if there is a failure when communicating under the sea it can cause major losses. In this study, a simple tool for communication under the sea was made with specifications that can overcome the obstacle factor to communicate under the sea. This tool is also designed to solve errors in the information sent. The steps taken in this research are to make a transmitter which acts as a transmitter and connected to an XR2206 Function Generator as the source of the input signal, then a receiver is also made which acts as a receiver for the signal sent by the transmitter. Then the transmitter and receiver will be tested with several parameters, including distance, depth, and frequency ($f_r=400\text{kHz}$ & $f_i=100\text{kHz}$). This tool is made based on the implementation of digital modulation, namely FSK Modulation. The results obtained from the test (at a distance of 10 cm - 50 cm with a depth of 15 cm, 20 cm, 25 cm) are with the modulated frequency result of 200 kHz there is an attenuation percentage of 59.23% - 63.84%, 68.44% -71.58%, and 68.42% -70.98%.

Keywords: *FSK Modulation, Attenuation, Frequency, XR2206 Function Generator, Transmitter, Receiver*