ABSTRACT

Underwater acoustic communication (UWAC) is a technique of sending and receiving information through the medium of water using acoustic signals. UWAC Implementation is done in various fields of application such as the underwater-telephone. Underwater acoustic channel is a channel that has a poor communication quality and high propagation delay.

This research uses RS-Code and LDPC as forward error correction to reduce error on information delivery. The Scenarios are comparing the behavior of AWGN and UWAC channel and reviewing the performance of LDPC coderate 1/3 with RS(63,21) on the UWAC channel for different carrier frequency and speed of receiver based on target BER 10^{-3}.

UWAC channel has worse behavior than AWGN channel as influenced several parameters such as spreading loss, attenuation, multipath, ambient noise, and doppler shift. The smaller coderate of LDPC then its performance will be better. For achieving the target BER of 10^{-3} at a frequency of 20 KHz, 30 KHz, and 40 KHz, LDPC coderate 1/3 requires each Eb / No of 21.117 dB, 21.48 dB and 22.008 dB while for RS (63.21) requires Eb / No of 24.8 dB, 25.75 dB, and 25.9 dB. And for achieving the target BER of 10^{-3} at receiver speed of 2.5 knots, 15 knots, and 20 knots, LDPC coderate 1/3 requires each Eb / No of 20.8 dB, 23.83 dB, and 25.34 dB while for RS (63.21) requires Eb / No of 22.88 dB, 25.45 dB, and 27.2 dB.

Keyword : UWAC, *Underwater telephone*, BER, AWGN, RS-*Code*, LDPC.