ABSTRACT

LORAN-C (Long Range Navigation-C) is position determination method, operate in 100 KHz Low Frequency. Loran-C system consists of transmitting station, which are placed several hundred miles apart and organized into chains. Within a Loran-C chain, one station is designated as the master station and the others as secondary stations. Every Loran chain contains at least one master station and two secondary stations in order to provide two lines of position. The master and secondary stations transmit radio pulses at precise time intervals. A Loran receiver measures the Time Difference (TD) between when the observer (target / user) receives the master signal and when it receives each of the secondary signals. When this elapsed time converted to distance, the locus of points having the same TD between the master and each secondary forms the hyperbolic LOP. The intersection of two or more of these LOP`s produces a fix of user`s position.

This final project explain about Loran-C system planning in Indonesia, include determination of transmitter and receiver Loran-C specification, determination of transmitting stations location based on field strength radiation calculation and noise prediction that is propagate pass through ground plan and group repetition interval (GRI) calculation. And, it simulate position determination uses matlab 6.5 software. Then, both results of planning and simulation are analyzed.

The result of planning indicates that length of range from transmitter to receiver is affected by power radiation, ground plan which is has difference conductivity and permittivity each other and the noise. Further, GRI must great enough to certain each transmitter pulses perfectly achieve to the user before GRI cycle turn again. But must small enough so the delay not too long. Simulation shows information of Loran-C system accuracy.

Keyword: Loran-C, groundwave, hyperbolic line of position, time diferrence.