ABSTRACT

Loran (Long Range Navigation) is navigation system using long range radio wave where the transmission of precisely spaced pulses from which users can derive information of position, time, and data. This system like GPS (Global Positioning System) but consists of three or more land-based transmitting station placed to be separated by several hundred miles and organizational in chains. Within the Loran chain consisted of minimum Loran chain three station that is 1 master station and 2 secondary station to providing 2 lines of position (LOP).

This final project will discuss about design acceptable format signal by system Loran-C, and then transmitting process signal Loran-C at two system transmitter that is for the master of and secondary. That Signal transmitted by the canal condition at ground wave propagation and then design the receiver system able to accept the information timing, paging, and navigation. For the service of navigation, receiver system will calculate the Time Different (TD) from each transmitter as parameter for the calculation of position determination expressed in latitude and longitude.

Based on simulation result indicates that the system performance very influenced by level of SNR. The larger of SNR will get the Bit Error Rate (BER) is small for the timing and paging, and at navigation system will get the small position mistake. At simulation, to test the performance of timing and paging include the SNR 0 until 50 dB, that condition happened larger Bit of Error Rate (BER) at SNR 10 dB downwards to timing and paging. At the navigation service only including condition SNR 10 until 30 dB, because mean of larger error position calculation at the time of 10 dB downwards this matter is caused by there are a lot of signal distortion so that difficulty of detection of zero crossing and condition of Loran-C signal is not detected.