

ABSTRACT

Loran-C (Long Range Navigation-C) is a terrestrial navigation system or a positioning technique that uses hyperbolic lines of position, use of low-frequency radio wave transmitter from 90 to 110 kHz where the signals propagate in the earth's surface and use a high transmit power to reach a wide area. Loran-C has a system such as GPS (Global Positioning System) but the difference is Loran-C uses a separate transmitter station a few hundred mile and form a chain. In one chain, one station acts as the master and the other as secondary. Each chain consists of at least one master and two secondary to produce the two curves in line of position (LOP). LOP can be determined from the position of the user.

In a perfect world, Loran-C signals propagate from the transmitter to a receiver on groundwave. However, in fact the system also receives signals from the receiver caused by the propagation skywave ionosphere. Unwanted signals propagated as skywave and superimposed on the wanted groundwave signal can reduce the accuracy of the Time Of Arrival (TOA), causing the user's position is not accurate. This final project design and simulate an algorithm that can detect the delay skywave on Loran-C is the algorithm ARMA (autoregressive Moving Average). The simulation results will be compared with the method of Fourier Transform (FFT). From the simulation results of both methods, using ARMA algorithm will produce accurate delay high estimation skywave and can work well at low SNR values. This algorithm is simulated using matlab 2007.

Keywords : ARMA, *delay*, *skywave*, *groundwave*.