

ABSTRACT

Loran (**LO**ng **RA**nge Navigation) is a terrestrial navigation system using hyperbolic lines of position method, using low frequency radio transmitters from 90 to 110 KHz with signals that propagate along the surface of the Earth (ground waves), and using high radiated power to cover large area.

A Loran navigation system use some land-based transmitting station widely spaced till hundreds of kilometer and organized in one chain. Each Loran chain consists of 1 master station and at least 2 secondary stations. Loran transmitter transmit Loran pulse and then receiver measures the difference in times of arrival of signals (time difference abbreviated TD) from which hyperbolic lines of position are determined. The point where two lines hyperbolic cross is the position of the receiver.

At this Final Task will be designed and realized Loran-C receiver subsystem that able to process and detect Loran-C navigation signal use FPGA VIRTEX 4 V4LX25LC to get output value of time differences. The time difference value will be show in LCD 2x16 VIRTEX 4 V4LX25LC.

Result of realization Loran-C receiver subsystem are FPGA can be used for stand alone Loran-C receiver subsystem with certain precision and only about 1 % logic block used from all logic block that is available on FPGA. The output value of time difference appear in real time in VIRTEX 4 V4LX25LC LCD's. Therefore it can be done furthermore development and research by combainning Loran-C subsystem with the RF block .

Key Word : Loran-c, Land-based transmitting station, chain, time different, hyperbolic lines of position, FPGA.