

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, without using GPS. Loran is terrestrial radio system that use radio wave propagation characteristic above earth's surface called ground wave. One Loran system, in a country, contain several sub system called cell or as known as chain. Where one Loran system, with wide coverage, made of one master station and minimal two secondary stations. With self owning of navigational system, Indonesia can minimize their dependence from other country that will improve national defense.

This final contain of design for device loran-c transmitter using FPGA in IF level. Generate signal from master station and secondary station. 1 GRI form, will detected in Loran receiver for the calculation of Time difference. In real application, time difference can determination position of receiver.

In design use FPGA, precision of Loran-C pulse can determined. Generate pulse that have width $300 \mu\text{s}$, and delay pulse is $700 \mu\text{s}$. The length 1 GRI for Loran-C, is 32 ms. Signal characteristic from AM-DSB-SC modulation can reach the maximum amplitude at $t = 63 \mu\text{s}$.