ABSTRACT

LORAN (Long Range Navigation) is the navigation systems that use the radio wave with long range where the transmitted pulse sends by right space. And then the user will get the position, time and data information. LORAN use 100 kHz frequency, this frequency used because the allocation of frequency given by low frequency range and the technology is still using low frequency. LORAN system is consisting of one master station and minimal two secondary stations. LORAN system will give the navigation, time and message service in the receiver. Time services are produced by timing system with the result of that will give the right time of global agreement. Message service is produced by paging system with the result of that helping to provide right information.

Signal Generator is the important device that produce LORAN signal. This final assignment contents the design and realization generator device on LORAN-C in navigation service. The method of the final assignment is using Phase Locked Loop (PLL). The using of PLL is purpose to provide the output signal is the same with input signal with the result of that the stabilized of LORAN signal.

This design of signal generators is the mixing of signal that produced by sinusoidal signal and square signal with the Phase locked loop (PLL) method. And then the signal will be processed by amplifier. The output of this generator is the waveform of the envelope signal with 100 kHz frequencies, 20 kHz bandwidths, 248 us of the width pulses, and 948 us of the length the one pulse with another. The stabilization of the signal is good with the high accuracy of frequency, but the result of mixer waveform has not suitable with the theoretic signal. Nevertheless, the signal generator can use in LORAN system because the specification of the signal has relevant.

Keyword: LORAN, Signal Generator, PLL, 100 kHz