

ABSTRACT

Synthetic Aperture Radar (SAR) is one type of radar that is used for a variety of remote sensing applications with the output in the form of images or images. Basically, SAR sends a signal to an object and is reflected back and then the signal is diprose. The signal sent by SAR is in the form of a chirp signal. FMCW radar system is a radar technology that produces a certain range of frequencies with low shipping energy, in addition to low design costs.

In this final project, a design and implementation development for FMCW signal generator with DDS module for application is carried out. The design is done by specifying a sampling frequency of 125 MHz, which is adjusted with the DDS module used, namely the DDS AD9850 module, up-chirp by 20 MHz and down-chirp by 10 MHz, and the form of a triangular FMCW signal. The amount of up-chirp and down-chirp meets the Nyquist theorem criteria, ie no more than half of the maximum frequency of 125 MHz is 62.5 MHz.

From the results of observations of the output in the software after coding of the formulas used in the simulation design, the phase formation obtained and can be observed in the simulation is not perfectly shaped and still less than expected, and the results obtained in the simulation at the lowest frequency of 10 MHz while the highest frequency is 50 MHz