ABSTRACT

Radio Detection and Ranging (RADAR) is a method or device that can utilize electromagnetic waves in detecting distance, speed and characteristics of an object when receiving data / electromagnetic signals. In the receiving process there will be various of interference that can interfere the electromagnetic wave quality and caused frequency shifting both in transmit and receive, therefore a filter device is needed to maintain the quality of the electromagnetic waves on the radar itself, so it can produce appropriate output.

Filter is a device that is used to filter out certain areas of work frequency where only the desired frequency (pass band) can be forwarded. In this research, filters will be designed and realized, namely Band-Pass Filter (BPF) which works on the C frequency band (C-Band), the filter has a bandwidth of 100 MHz, with a working frequency of 5.75 GHz - 5.85 GHz and a middle frequency at 5.8 Ghz. The method that will be used is Open-Loop Square which tends to be easy in the design and fabrication process.

The results of the Open-Loop BPF Square by using Duroid 5880LZ ROGERS substrate material, which is a filter that works on C-Band, the filter has a center frequency of 5.8 Ghz and a bandwidth of 240 Mhz, with working frequency 5.63 Ghz - 5.86 Ghz. Insertion loss is -3.81 dB, return loss is -17.48 dB and the dimension is 3.82 cm x 3.82 cm.

Keywords : BPF, Radar, *Square Open-Loop, Chebyshev, C-Band*