

## ABSTRACT

SAR (synthetic aperture radar) is a remote sensing technology toward earth surface. In order to obtain good sensing results, other frequencies that pass through the device during modulation and other interference frequency must be removed. To eliminate the interference SAR uses a device known as band pass filter that can pass the required frequency and cut the unexpected frequency.

In this final project, a band pass filter is designed, realized, and evaluated by using SIR (stepped impedance resonator) combined with squared ring resonator in order to have a bandwidth of 10 MHz at the 1.27 GHz as the frequency center. The material used in this filter is the duroid RT-5880 which has a dielectric constant of 2.2.

The filter dimension is 65 mm  $\times$  45 mm. The measurement result of the realized filter is at a frequency of 1.27 GHz. The return loss value is -22,275 dB, the insertion loss value is -2,681 dB, and has a bandwidth of 24 MHz.

**Keywords: band pass filter, stepped impedance resonator, squared ring resonator, duroid RT-5880**