

ABSTRACT

Weather radar can be referred as weather radar or weather surveillance radar (WSR) and Doppler weather radar, is a type of radar used to find rainfall, calculate movement, predict the type of object (rain, snow, hail, etc.) . In this case, in order for the weather radar to get a good sensing result, the other frequencies that are either over-loaded or undesirable and the interference at the time of modulation in the device should be eliminated. To eliminate the interferences' constraints, required device which called filter. The required filter is a Band-pass Filter in order to pass passband frequency and cut stopband frequency.

In the design of a filter there are several techniques that can be used to design a filter with high selectivity and narrow bandwidth. A technique that can be used, which is a combination of squared ring resonators with edge coupled to I / O Lines.

This final project designing and realizing a Band-pass Filter that works on X-Band frequency, using Square Ring Resonator method with edge coupled to I / O lines based on microstrip in order to have 50 MHz frequency bandwidth and the middle frequency at 9.475 GHz. The material that used in this filter is the Rogers Duroid 5880 which has a dielectric constant 2.2. The measurement result of the realized filter is at 9.475 GHz. The return loss value is -20.551 dB and the insertion loss value is -3.234 dB. Filter bandwidth is 46 MHz.

Keywords : Filter, Band-pass Filter, Weather Radar, X-Band Frequency, Open Loop Square Resonator, Rogers Duroid 5880.