

ABSTRACT

The development of telecommunication technology had rapidly developed since these last years ago. One of many telecommunication technology that had developed was Ground Penetrating Radar (GPR). GPR was a Radar applications which was designed to detect burried objects under the ground. The principle of GPR system's work was using emission of electromagnetic waves to the burried object, then receiving reflected electromagnetic waves from those. In order to get GPR detection well, the interference impact from other signals that disturb it should be minimized by Radio Frequency (RF) components that usually called as filter. These component was usually located on receiver GPR system to stopped interfere signal from receiver antenna.

The filter type which used in these system was bandpass filter (BPF), where it could pass current range frequency (passband) which was needed, then can muffle frequency out of range (stopband). The designing bandpass filter process were able to be done by some filter design method. In these research was designed by square ring resonator method modified by coupled line stub on each side of resonator using microstrip transmission line. The substrat which used for designing filter was Rogers Duroid 5880 with its relative permitivity was 2,2.

By using these method to design filter, it was done that parameters of filter had closest to the spesification. Where, the center frequency result of final simulation was 1.412,5 MHz with its bandwidth was 675 MHz. While, the direct measurement of center frequency result was in 1.438 MHz with its bandwidth was 750 MHz.

Keywords : GPR, BPF, microstrip, square ring resonator.