ABSTRAC

Filter is a device that can perform signal transmission with a certain frequency and other frequency damping. Filters are a very important block in a radio communication system, because the filter filters and makes the desired signal (passband) and reduces unwanted signal (stopband). Frequency that is passed on this device according to the type of filter used with different characteristics.

Final Project aims to design and realize a filter type Band Pass Filter (BPF) which passed the frequency range 9370-9430 MHz. This frequency range is the frequency of work for the technology RADAR (Radio Detection and ranging) beach supervisor. Filters are made is BPF comb-line cavity. Combline cavity is a transmission line that consists of several resonators in the form of cylindrical rods (slabline). The materials used to realize the BPF is brass. Form of damping characteristics of combline BPF filter is designed based on mathematical approach Chebychev (equal ripple).

To obtain performance information and the characteristics of the prototype that has been made, then the filter was tested by using the Network Analyzer. The parameters used to measure the performance of the BPF include: frequency response, the center frequency,-3dB bandwidth, insertion loss in the passband, return loss, Standing Wave Ratio (SWR) and terminal impedance. The measurement results of the BPF characteristics are: frequency response at 9510 – 9616 MHz, the center frequency at 9558 Mhz, - 3dB bandwidth = 106 MHz, insertion loss in the passband at centre frequency = -25,175 dB, Standing Wave Ratio (SWR) at center frequency = 2,149, return loss at center frequency 8,768 dB, and terminal impedance at center frequency = 24,048 + j 2,145 Ohm.

Keywords: Band Pass Filters, Cavity Combline, Chebyshev