

## ABSTRACT

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). In a system of radio transmitter or receiver, from the baseband to the RF would always found the filter.

In this final project will be design with a Band Pass Filter at frequency 1920 MHz-1980 MHz. BPF will be made in the form of square resonator BPF with attenuation characteristic forms were designed based on the response characteristics of a single pair of transmission zeros. BPF is realized with a microstrip line, ie a channel which consists of the groundplane, the substrate with certain characteristics, and the strip conductor. Type of substrate used is Duroid Roger 4003 with dielectric constant ( $\epsilon_r$ ) = 3,38, substrate thickness  $t = 0,035$  mm and loss tangent 0,0027

BPF measurement is done by using the Network Analyzer to obtain information about the performance and characteristics of the prototype that has been created. Parameters that have been tested from the BPF include frequency response, bandwidth, insertion loss, return loss, SWR (standing wave ratio) and the terminal impedance. From the measurement results obtained from the characteristics of BPF center frequency 1950 MHz with a bandwidth of 52,125 MHz, 7,9 dB insertion loss, SWR 1,194 , 20,2 dB return loss and impedance terminal  $50,609 - j23,16\Omega$

**Key words** : BPF square resonator, microstrip, single pair of transmission zeros