

## ABSTRACT

Design and Realization of BPF Chebychev Prototype with Parallel Coupled Metode at 2,3 - 2,4 GHz by using 50Ω-SMA Connector based on Microstrip is the desaigning of an electronic telecommunication device that can pass the frequency area between 2,3 – 2,4 GHz. Type of BPF filter is Equal Ripple ( Chebychev ) because it has sharp slope, so that it can be used and well applicated for frequency..

On the microwave communication system, filter can be realized by using waveguide, coaxial, stripline, and microstrip. This production of BPF filter will be realized by using microstripline of Epoxy with terminal impedance  $Z_t : 50\Omega$  unbalance on the first cut off frequency is 2300 MHz and the second cut off frequency is 2400 MHz. Microstrip consists of patch, substrat, and groundplane. The patch and gounplane of copper its thick : 0,05 mm. The type of substract is Epoxy or FR4 and its height : 1,44 mm and  $\epsilon_r : 4,4$ . The reason of material selection is potencial produces high frequency such as radio frequency. This BPF filter can be used for Wimax because its position is 2300 – 2400 MHz.

Based on the result of measurement by using Network Analyzer can be conclude that BPF bandwidth on -3dB from Insertion Loss is 200 MHz. SWR ( Standing Wave Ratio ) on the middle frequency and passband are 1,114; 1,76; 1,7. Insertion Loss on the passband is 6,254 dB. Return Loss of BPF filter is more than 14 dB. Terminal impedance on the middle frequency and passband are  $45,113 - j1,353 \Omega$ ,  $57,464 - j27,613\Omega$ ,  $43,307 + j22,677\Omega$ . Phase responses of output signal have periodic value. The phase change on the range of  $44,89^\circ$ ,  $10,84^\circ$ ,  $71,82^\circ$ ,  $138,77^\circ$  until  $165,32^\circ$