

## ABSTRACT

*Filter is a device on a communications system that can pass a certain frequency regions and reduce the frequency of unwanted areas. Frequency used will vary depending on the applications used. Based on the frequency that is passed, the filter is divided into several types: LPF (Low Pass Filter), BPF (Band Pass Filter), HPF (High Pass Filter), and BSF (Band Stop Filter).*

*Filter to be designed to have an application which is a standard WiMAX technology from WMAN (Metropolitan Wide Area Network) that can reach the area by more than 50 km, but has a narrow bandwidth. At this final project, the methods used in the design of the BPF filter is a Composite method, the incorporation of the use of stepped impedance LPF and HPF filter using shunt open circuit stub. This filter works at a frequency of 3300 MHz - 3390 MHz for fixed WiMAX applications. This frequency region, allowing the occurrence of interference with the adjacent downlink frequency in satellite communication (Fixed Satellite Services / FSS), at a frequency of 3.5 GHz.*

*Filter performance information is measured using Network Analyzer. The results of measurements of the characteristics of the BPF center frequency is 3464 MHz with a bandwidth of 28 MHz, insertion loss 1,56 dB, return loss 16,81 dB, 1.5028 VSWR 1,42, and terminal impedance  $28,43 + j39,39 \Omega$ .*

***Key words: Filter, Wimax, Stepped Impedance Filter***