

ABSTRACT

Filter is a transmission device which has a function to pass a specific frequency to pass the desired frequency (pass band) and reduce unwanted frequencies (stop band). The frequency of this device is passed in accordance with the type of filter is used with different characteristics.

At Final Project designed up Band Pass Filter (BPF) which has a wide bandwidth at a frequency of 3.1 GHz - 5.1 GHz with Butterworth type. Types of transmission lines used in the realization of this BPF micro strip channels, namely the transmission line consisting of the strip conductor and ground plane are separated by a substrate with a particular material characteristics. For the type of substrate used is FR4 with a specification: $\epsilon_r = 4.4$, substrate 1.6 mm and thick copper layers 0.05 mm

Filter measurements done with the network analyzer to obtain information about the performance and characteristics of the prototype made. The parameters of the prototype has been tested BPF include frequency response, bandwidth, insertion loss, return loss, standing wave ratio, and impedance terminals. The results of measurements of the BPF characteristics are: center frequency bandwidth of 2.6 GHz with 2200 MHz, 9437 dB insertion loss, 14,672 dB return loss, SWR 1453, the terminal impedance of 52,221 - 22,342 Ω j and some of these parameters in samples taken WiMAX applications operating in frequency of 3.5 GHz.

With this device may be used to support the technology in the network Personal Area Network (PAN) which supported a wide operating frequency and technology, WiMAX (Worldwide Interoperability for Microwave Access), which operates at a frequency of 3.5 GHz.

Keywords: Band pass Filter, Ultra Wide Band Personal Area Network, WiMAX