ABSTRACT

Filter is a device that is used to pass certain frequency by allowing the frequency signal that is wanted (pass band) and attenuating the unwanted signal (stop band). The frequency that is passed through this device is matched with the filter that is used with different characterictic.

This Final Project was aimed for designing and realizing a BPF (band pass filter) for UHF Digital TV transmitter. The filter that would be made was combine bandpass filters microstripe. Microstripe channel is a transmission channel that consists of conductor stripe (patch) and groundplane that separated by substrate with certain material characteristic. Patch and groundplane used was made from copper with 0.05 mm thick, with Epoxy substrate or FR-4 that has $\varepsilon_{r} = 4.4$ and 1.65mm height. The shape of combline BPF attenuation characteristic was designed based on mathematical approximation Chebychev (equal ripple).

To get information about the activity and characteristic of the prototype that has been made, so this filter was tested using Network Analyzer. The parameter tested from this BPF prototype are Frequency response, Bandwidth, Insertion Loss, the change of phase, Return Loss, Standing Wave Ratio, and terminal impedance. The measure result from BPF characteristic is : center frequency 659.75 MHz with bandwidth 47 MHz (at 26.532 dB), insertion loss 23.716 dB, VSWR ≤ 1.5 , the change of phase with frequency is constant, and terminal impedance 51.201 - j27.185 (input) dan 46.302 - j8,735 (output).

Key words: microstrip, combline bandpass filters, chebyshev, Digital TV transmitter