ABSTRACT

Filter is a transmission means that has function to pass certain frequency with release wanted frequency (pass band) and damp unwanted frequency. Passed frequency in this means must suitable with filter type that used with different characteristic.

In this final project will design and build Band Pass Filter (BPF) in frequency between 2,3 – 2,4 GHz. Transmission canal type used in realization BPF here use band pass combline, it is a transmission line using resonator that has a slabline form that made of brass and air as dielectric. The characteristic of filter attenuation has been design based on Chebyschev. To determinate the self capacitance and coupling capacitance of the filter, the equations from G.L. Matthaei are applied, where as the dimensional design of filter is based on study of E.G. Cristal.

Filter measuring done with Network Analyzer to get information about performance and prototype characteristic that made. Parameter that analyzed from BPF prototype such as: frequency response, bandwidth, insertion loss, standing wave ratio, the change of phase and terminal impedance. The measure result from BPF characteristic is: center frequency 2,35 GHz with bandwidth 100 MHz (at 1,4 dB), insertion loss 1,4 dB, VSWR $\gg$ 1,5 ($\approx$4,3), the change of phase with frequency is constant, and terminal impedance 57,576 + j4,161 Ω (input), and 57,640 + j12,791 Ω (output).

Keywords : BPF , *Combline, Cavity, Chebychev.*