

ABSTRACT

Filtering the desired frequency area of work in the field of transmission can be achieved using the device (functional unit) filter. Filter is a device used to filter the working frequency range, with the desired pass frequency (passband) and reduce unwanted frequencies (stopband).

In this final project design and realization Chebychev BPF filter cavity Comblin method that can be applied at a frequency of 1800 is a GSM Link Up with the frequency range 1710 MHz - 1785 MHz. Filters are realized by using the transmission line using a cylindrical rod-shaped resonator (slabline) made of brass, and the air as a dielectric. BPF filter attenuation characteristic forms were designed based on mathematical approach Chebychev. Designing for determining the capacitance itself (self capacitance) and capacitance together (coupling capacitance) based on the equations of the GL Matthaei. While the dimensions of the filter design based on curves of EG Cristal.

Testing will be done by filter Network Analyzer to obtain information about the performance and characteristics of the prototype is made. The parameters that were tested from the prototype filter frequency response, phase, insertion loss, Standing Wave Ratio, and Return Loss. BPF characteristic measurement results from this are: central frequency of 1747.5 MHz, 3 dB bandwidth of 130 MHz, 3.128 dB insertion loss, VSWR 1.999, changes the phase of constant frequency, return loss 9,547 dB and impedance terminal $78.568-j33.351 \Omega$.

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