

## **ABSTRACT**

*Resonator is a circuit that can pass certain frequencies and muffle unwanted frequencies. Dielectric resonator is a material with a high dielectric constant and low losses. In the manufacture of high-frequency BPF is required a dielectric resonator materials for simplify of design. The advantages of using this method is when the realization of optimization can be done without printing microstrip again, the drawback is the setting of dielectric resonator layout that are difficult to produce the expected output.*

*This thesis design and realize a dielectric resonator BPF based on microstrip on frequency 10360 MHz - 10430 MHz for coastal guard radar applications. This filter manufacture transmission line will use mikrostip channel, which consists of a transmission line conductor strip width, the thinness of the strip conductor, placed on a substrate. Dielectric substrate have a groundplate underneath. At these filters also be put in a dielectric resonator for filter manufacturing. Output that expected to get the value of insertion loss and better bandwidth than previous designs.*

*Filter measurements is performed by using a network analyzer to obtain information on the performance and characteristics of the prototype that has been made. The parameters measured include: frequency response, bandwidth, insertion loss, return loss, Standing Wave Ratio, and terminal impedance. The measurement results are: center frequency 10.540 GHz with a bandwidth of 570 MHz, insertion loss 1.840 dB, return loss 15.369 dB (input) and 30.288 dB (output), SWR 1.410 (input) and 1.047 (output), terminal impedance  $70.411 + j2.143 \Omega$  (input) dan  $41.229 + j116.875 \Omega$  (output).*

*Keywords: Dielectric Resonator, BPF, Microstrip*