ABSTRACT

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Study Program	:	Telecommunication Engineering
Title	:	Design and Realization of S-band (3 GHz) *Combline* Bandpass Filter for Coastal Radar

Indonesia is a maritime country that has a vast territorial waters with 81,000 km of coastline that must be safeguarded both from illegal activities and to supervise sea transportation around the coastline, this encourages the need for a Radio Detection and Ranging (RADAR) Coastal S-Band which can detect, measure distances and create a map of objects reliably placed both on ships and shorelines.

The S-band Coastal Radar works on a frequency of 2.9 - 3.1 GHz, in order to work properly a device that can pass the working frequency and reduce the frequency in it as it may interfere with the performance of the Radar. The device is a Band Pass Filter which in this research designed to have bandwidth as Radar Coastal S-band specification that is equal to 200 MHz. The design of BPF using Combline method with chebyshev frequency response with 0.1 dB ripple.

The result of filter realization using Fr4 substrate type (Ɛr = 4.4) resulted in filter dimension of 2 cm x 3.2 cm with middle frequency of 3000 MHz with bandwidth -3dB is 220 MHz in medium frequency measurement of Insertion loss result of -3.332 dB, return loss of -22.472 dB and VSWR value of 1.207

Keywords : *filter, Combline, Radar Coastal,S-Band*