

## ABSTRACT

Indonesia is a maritime country where most of its archipelago is surrounded by the ocean. Therefore, a technology is needed to secure the oceans and coasts of the Indonesian archipelago from illegality. Radar is a technology that can function as an eye that can see objects at a distance. Coastal surveillance radar is a system that can monitor and detect various activities in the sea

A component needed for this coastal surveillance radar is an antenna that has a relatively wide bandwidth, so an antenna is needed to support this radar technology, namely a periodic log antenna. This Final Project has designed a periodic log antenna in the frequency range of 9.15-9.65 GHz for use in coastal surveillance radar systems. The antenna in this study was designed with a simple design. The antenna has 16 elements with.

This final project is simulated using software, and fabricated using FR-4 Epoxy substrate material which has a constant of 4.3 and a thickness of 1.6 mm. The results of the antenna simulation at a frequency of 9.4 GHz with a return loss value of 21.18 dB with a bandwidth width of 500 MHz in the form of a bidirectional radiation pattern. Then the results of the realization and measurement of the antenna at a frequency of 9.4 GHz, the return loss value is below 10dB, namely 17.4 dB with a bandwidth of 640 MHz in the form of bidirectional polarization.

**Keywords :** *log periodic, return loss, bidirectional*