

ABSTRACT

In the era of technological developments nowadays, It requires a sophisticated electronic device that could help the security defense system of Indonesia, where two-third of the area is sea and needed a dependable security. Therefore, to increase the security within the area, it needs a system that can improve the ability of Defense of the Republic of Indonesia, which is unitary State Electronic Support Measure (ESM). ESM is being developed by LIPI for later use in security systems Indonesia.

ESM in General is an electronic equipment which serves to receive the signals of electromagnetic waves, the signal is then processed and analyzed so that the retrieved location, signal strength and other parameters. One of the important subsystems in the ESM is the antenna subsystem as the receiver signals of electromagnetic waves. On the research of this final assignment will be designing microstrip fractal-bowtie antenna which worked on the Ultra Wideband frequency 2-18 GHz to meet the needs of Electronic Support Measure(ESM).

Therefore, in this final assignment, a microstrip antenna will be designed using Ansoft HFSS 15.0. However, to overcome the shortage of microstrip antenna that is on the form of a small bandwidth, a combination of design process performed on the bowtie-shaped patch with the fractal sierpinski gasket, transmission line, and antenna in order for partial groundplane has a wider bandwidth and make the antenna working on Ultra Wideband frequency 2-18 GHz.

Keywords: Microstrip Fractal- bowtie Antenna, Ultra Wideband, ESM.