

ABSTRACT

Indonesia has a very large area, it is necessary a system that can maintain its sovereignty. Electronic Support Measure (ESM) is one part of the Electronic Warfare that has ability to track the position of an electromagnetic wave sender device. To support the performance of the ESM system is needed antenna that serves as a component of electromagnetic wave receiver before the process by system signal processing.

To fulfill the requirement, the design Printed Dipole Log Periodic Array Antenna For S-Band ESM. In antenna design, fractal koch optimization method is printed on PCB with Substrate FR4 Epoxy ($\epsilon_r = 4,6$) with Substrate thickness 1,6 mm and conductor as irradiation patch material using copper ($\sigma = 5,8 \times 10^7$) with thickness of 0,035 mm.

The measurement results show that the designed antenna has a lower frequency of 2 GHz with a value of 1.87 VSWR and a return loss of -10.34 dB and the upper frequency of 4 GHz which has a value of VSWR of 1.80 and the return loss of -10, 87 dB. And the antenna gain of 7.68 dBi, with directional radiation pattern that has a mainlobe to one side of the antenna, and polarization of ellipse with value | AR | Of 6,745 dB.

Keywords: *ESM, log periodik, S-band, Fractal koch*