ABSTRACT

Electromagnetic wave absorber is a kind of material that can weaken the energy of electromagnetic wave that comes so as to minimize and even eliminate the reflected waves. In the present era, many electromagnetic wave absorbers applied to microstrip technology so that the absorber can be planar and applicable. The application of electromagnetic wave absorbers is widely used to eliminate unwanted radiation so that the performance of a system which protected by absorber is not disturbed.

The method that used in this research is the experimental method that observe using 3D electromagnetic design software. For the first step of the research, rectangular patch dimensions are calculated as an initiation form, after that the patch form is replaced by edge-coupled SRR and s-ring patterns based on the previous rectangular shape. From the changes and application of the pattern, absorption response was observed based on the return loss and bandwidth parameters as well as the resonant frequency shift in the C-band.

The results of the simulation of the electromagnetic wave absorber with the s-ring pattern offer smaller dimensions compared to the edge-coupled SRR pattern at a resonant frequency of 6.01 GHz and a return loss < -10 dB. At the edge-coupled SRR absorber the widest bandwidth is achieved compared to all variations of the characterization value, which is 96.9 MHz with a resonant frequency of 6.57 GHz when the patch width is 7.2 mm.

Keywords: Electromagnetic Wave Absorber, Resonator, Edge-Coupled SRR, S-Ring, C-Band.