

ABSTRACT

Anti-radar based on absorber is a technology to avoid radar detection by absorbing radar signals that hit the body of flying objects so they cannot be reflected back to the detection radar system. The currently conventional absorber can only absorb signals with one type of frequency, this is a problem because objects can still be detected by the radar system with other frequencies. This Thesis proposes an active anti-radar based on absorber which can vary the frequency of the absorbed signal based on the input voltage.

Anti-radar consists of absorber, voltage system and other supporting devices. Absorber is designed using the square patch metamaterial with the Active Frequency Selective Surface (AFSS) method to get variations of absorber frequency. Voltage system is a microcontroller circuit that can generate varying voltages automatically. This final project designs and simulates absorber using software Computer Simulation Technology (CST) Studio Suite and voltage system using website online Tinkercad.

From the anti-radar design simulation that has been carried out in this Thesis, several main results were obtained, namely: (i) absorber design that can change the frequency of the absorbed signal based on the input voltage, (ii) change absorption frequency in absorber is affected by changes in the value of the diode capacitance according to the theory of resonant frequency in metamaterial and diode circuits, (iii) absorption of absorber which has a percentage of more than 90% and bandwidth is more from 2 MHz according to the desired absorber specification, (iv) the voltage system circuit can automatically generate varying voltages (0 V, 3 V, 4 V, 5 V, 9 V).

Keyword: Anti-radar, Absorber, Metamaterial, Active Frequency Selective Surface (AFSS).