

ABSTRACT

In radar systems such as Airport Surveillance Radar (ASR), a directive feature is needed to determine the direction of the target. In a large antenna system, beam steering technique can be done mechanically with a physical positioning system that requires a large cost and precision calculations because it is executed manually. To overcome this, an antenna guidance technique is required without the need for mechanical movement of the antenna system.

In this Final Project a passive phase shifter is designed to maintain the stability of directional antenna. Passive phase shifter designed in the form of small and compact microstrip. The design and realization of the passive phase shifter will be done using the meander line method, which divides the microstrip coupled line structure into two parts of the same length, but with different characteristic impedance values to produce a 90° phase difference.

The result of this final project is a passive phase shifter microstrip that works on S-Band frequency (3 GHz), with 90° phase shift and parameters according to design, that is the return loss value of S_{11} is -16.35 dB and S_{22} is -14.908 dB. While the value of the phase shift are 97.22° for S_{12} and 92.56° for S_{21} . Once realized, it is expected that its presence can be useful as a solution for simpler and more economical directional antenna systems.

Keywords: Microstrip, Passive phase shifter, Radar, S-Band