

ABSTRAC

Radar technology is being intensively developed in Indonesia, the use of Radar itself is very much needed in Indonesia, especially for air surveillance. In the radar system there is an antenna that is used for transmitting wave pulses and receiving their reflections. In this case, what should be considered is the isolation between the transmitted signal and the received signal. The coupler function on the Radar can be used as an increase in signal isolation between the transmitted signal and the received signal, thus the transmitter signal does not affect the receiver signal or vice versa. The Branch Line Couple (BLC) has two outputs that have the same value with a 90° phase difference.

This final project is a continuation of research by comparing the #-Slot type Coupler with the #-Patch Conductor type which can be used to complete the ASR Radar system. In previous studies focused on adding slots, this final project focuses on adding conductor/parasitic elements to the Patch which is expected to increase Bandwidth compared to the previous type. Coupler #-Conductor Patch fabrication uses a substrate made from FR-4 Epoxy which has a dielectric constant of 4.4 and a thickness of 1.6 mm.

Manufacturing results produce the lowest Return Loss value at port 2 of -26.565 dB, the lowest VSWR measurement value at port 2 of 1.1077, Insertion Loss that occurs less than -3 dB, coupling value < -15 dB and increased bandwidth compared to previous type #- slot with a width value of 116 MHz.

Key Words : Branch Line Coupler, Transmitter, Receiver, Radar, Bandwidth