

ABSTRACT

Identification Friend or Foe (IFF) is an identification system designed for command and coding. The IFF is able to distinguish friends and enemies on the identification of aircraft approaching the target. The IFF system has a separate working frequency, one for the interrogator and one for the receiver. At the working frequency the interrogator works at a frequency of 1,030 MHz and the working frequency of the receiver works at a frequency of 1,090 MHz.

The antenna is a device that plays an important role in this IFF radar communication, both for interrogators and for receivers, signal reception is fulfilled, with the development of antennas leading to the omni antenna type.

This antenna works at frequencies of 1,030 MHz and 1,090 MHz using microstrips with FR4 substrates. This antenna is designed using simulation software whose results are realized into physical form. The antenna design is a dipole collinear arrangement with the addition of parasitic elements. This antenna is integrated with a 2 way power combiner, so it can increase gain. The specifications that have been determined on this antenna are that it can work at frequencies of 1,030 MHz and 1,090 MHz with a VSWR value of ≤ 2 , return loss of ≤ -10 dB, and a gain of ≥ 1 dB, omnidirectional polaradiation, vertical linear polarization, and an impedance of 50Ω . The result of the realization of the antenna obtained the return loss parameter of $-10,495$ at the frequency of 1,030 MHz and $-10,242$ at the frequency of 1,090 MHz. And VSWR 2.0344 at the frequency of 1,030 MHz and 1.4846 at the frequency of 1,090 MHz. With the bandwidth obtained is 75 MHz. Omnidirectional radiation patterns, and linear polarization. Of the overall parameters, the realization antenna still does not meet the desired initial specifications for IFF (Identification Friend or Foe) radar because there are still parameters that are not on target.

Key words : *Dipole, IFF, Microstrip Antenna*