ABSTRACT

Microstrip antenna is one of antenna type which have the ability to work on 2 (two) different frequency areas. This feature is required when the antenna will serve 2 (two) applications at once. To get this feature, the optimization is required systematically using the antenna simulator software.

At the Final Task, the optimization of microstrip antenna of triangular patches is focused on the feedline or rather microstrip feed line. Optimization is done by varying the type of substrate in the feed line, namely FR4 Epoxy, Taconic TLC32, and Duroid RT5880, as well as changes in the form of feed line, which is the normal shape, shrink and enlarge. The aim is to obtain the optimal substrate and permitivity value for the antenna performance parameters, i.e. gain, bandwidth and return loss value at 2 (two) working frequency areas with an initial frequency at 2.4 GHz. This final task is an advanced study of the previous end task, namely "Slot effect on Dual Band Triangular microstrip antenna with an initial antenna frequency 2.4 GHz". So, the optimization is done on the antennas that have been designed on the final task above. The change in antenna performance focused on this optimization is the value of S_{11} frequency, gain and bandwidth functions.

From the results of the optimisation that the shape and substrate of optimal feed line is the form of feed line shrinking on substrate material FR4 Epoxy and Taconic. With the highest return loss value of 19.86 dB, the highest gain value of 1.092 dB, and the highest bandwidth value of 60.3 MHz in the band 1 (low), as well as the highest return loss value of 13.90 dB, the highest gain value of 3.890 dB, and the highest bandwidth value of 109,7 MHz on Band 2 (high).

Keywords: *triangular microstrip antenna, feed line optimization, dual band frequency, substrate.*