

ABSTRACT

Wireless communication technology these days requires antenna that have small dimension. In other hand, antenna that have multiband capabilities is advantageous due to its role to decrease the number of antenna being used to covers some frequency from various technologies. So that, to create a compact multiband antenna is a chalanges in antenna designing today's.

Fractal Planar Inverted F Antenna (F-PIFA) is an antenna that has small dimension, as well as possible to work in multiple frequency. Due to these advantages, F-PIFA is very adequate to be used in mobile communication. On the previous research, have been done an investigation about characteristics of single band PIFA that summarized into a more accurate equation of PIFA. On another research also have been done a research to study characteristics of *Sierpinski Carpet* pattern on microstrip antenna.

In this research, F-PIFA are being designed in the geometric form of Sierpinski Carpet which able to work in frequency of 2,4 Ghz, 3,3 Ghz and 5,8 Ghz by using FR4 Epoxy substrate. This research introduces an antenna that work in 3 frequency in $VSWR \leq 2$ with patch dimension less than $\lambda/8$. Furthermore, this research also shows the effect of dimension changes towards resonant frequency, this knowledge should be useful to aid multiband F-PIFA Sierpinski Carpet design

Keyword : F-PIFA, FR4 Epoxy, *Fractal Sierpinski Carpet, multiband*