

ABSTRACT

Wireless Fidelity (Wi-Fi) is a technology that uses electronic equipment to exchange information using radio waves as transmission medium. IEEE has released the 802.11n standard which is a Wi-Fi standard which has dualband frequency and supported by MIMO technique. Multiple Input Multiple Output (MIMO) is an multi-antenna that used at of transmitter antennas and receiver antenna, which can increase data rate, increase reliability, and can resolve multipath fading.

In this final project will be designed and realized Microchip Antenna Fractal Koch MIMO 4x4 For Access Point Wi-Fi 2.4 GHz and 5.8 GHz. The design is done using the help of software simulator. The designed microstrip antenna has FR-4 susbrates with dielectric constant of 4.6 and 1.6mm thick. The 2nd iteration koch fractal patch can provide dualband frequency and microstripline feeds. Microstrip antenna has a small dimension so it is very easy to implement in the access point.

In the fabrication result, MIMO microchip antenna fractal koch 4x4 has a 2.4 GHz frequency generated return loss value ≤ -11.70 dB, $VSWR \leq 1.67$, 2.81dBi gain and 175 MHz bandwidth. At the 5.8 GHz frequency generated return loss value ≤ -14.171 dB, $VSWR \leq 1.409$, gain of 2.83 dBi and 435 MHz bandwidth. The radiation patterns generated by each antenna on the 2.4 GHz and 5.8 GHz frequencies are omnidirectional. The polarization generated by each antenna at a frequency of 2.4 GHz and 5.8 GHz is an ellipse.

Keywords: Microstrip Antenna, MIMO, Wi-Fi , Fractal Koch