

A high gain double-octagon fractal microstrip Yagi Antenna

ABSTRACT

A Double-Octagon Fractal Microstrip Yagi Antenna (D-OFMYA) which is aimed to cover unlicensed frequency of 5.8 GHz is presented in this paper. The primary purpose of this experiment is to enhance gain of conventional microstrip antenna. The proposed antenna built on Arlon CuClad 217 substrate with thickness of 0.787 mm and dielectric permittivity of 2.2. A 3D full-wave EM simulator was used to design and to simulate the antenna. A computerized simulation model of the proposed antenna showed that the antenna is able to generate a maximum gain of 14.49 dB with S11 of -24.2 dB in a surface size of $80 \text{ mm} \times 120 \text{ mm}$. By contrast, results of an experiment indicated the fabricated D-OFMYA can reach a gain as high as 14 dB with the value of S11 is -19.8 dB. It can be concluded that a nominal gain of the D-OFMYA comes in higher than other microstrip Yagi array antennas and size reduction can be achieved through this design.