DESIGN OF MINSKOWSKI FRACTAL MICROSTRIP PATCH ANTENNA FOR SUPER WI-FI APPLICATION

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ABSTRACT

In this paper, the design of Minskowski Fractal microstrip patch antenna for Super Wi-Fi application is presented. Super Wi-Fi frequency is between 54MHz until 806MHz. The objectives of this project are to reduce the size of antenna while maintaining the performances of designed antenna. Frequency, return loss, bandwidth, voltage standing wave ratio (VSWR), radiation pattern, directivity and gain characteristics of this antenna are presented and discussed. The conventional MPA has been designed based on calculations made that operate at the frequency of 800MHz and fed by a 50Ω microstrip line. The Minskowski Fractal technique is being used to reduce size of the conventional MPA antenna. The antenna is designed and simulated by using the Computer Simulation Technology (CST) Microwave Studio software release version 2011. The Minskowski Fractal MPA is fabricated on RT Duroid 6002 substrate having dielectric constant, Ɛr is 2.94mm and the thickness of substrate, h is 1.524mm. The experimental measurement of the fabricated Minskowski Fractal MPA was carried out using Vector Network Analyzer (VNA). The comparison between Minskowsi Fractal MPA and conventional MPA results are analyzed. The size of Minskowski Fractal MPA is reduced around 60.3% compactness compared to the conventional MPA. It can be conclude that, increasing the number of iterations of the Minskowski Fractal MPA will decrease the antennas gain, input impedance, bandwidth and VSWR.

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