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Wheel shaped modified fractal antenna realization for wireless communications

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Abstract: A compact, low profile circular fractal patch antenna with low latency, low cost, high speed and multiband is presented. With the help of CST Microwave Studio Suite TM the proposed structure has been designed and analyzed. The simulated results are fixed experimentally. The suggested antenna has dimension of $32 * 36 \text{ mm}^2$ (W * L) and operating from 2.93 GHz-9.53 GHz with $\text{VSWR} \leq 2$. The aerial is assembled on FR-4 ($\epsilon_r = 4.4$) substrate with a thickness of substrate 1.25 mm. Detailed parametric studies of the antennas have been carried out. This microstrip fed antenna is suitable for ultra wideband (UWB), S, C and part of the X band applications.

Keywords: Microstrip patch antenna, microstrip feed, fractal, multiband, circular patch, CST Microwave Studio.

1. Introduction

In 2004, the Federal Communications Commission (FCC) had allotted a frequency spectrum range from 3.1GHz to 10.6 GHz for unlicensed ultra wideband (UWB) communications [1]. After that, many researchers paid attention to the design of antennas. Microstrip antennas had existence with a number of patches designs possible, but the rectangular and the circular are basic shapes [2-3] used in practice. The realization of aerial is concerned with geometry of the

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