

Abstract:

This paper proposes applying local optimization on fractal antennas to design a miniature multiband microstrip antenna. A carpet fractal of fourth iteration is designed within a patch area of 40.5 mm × 40.5 mm on a substrate with a relative permittivity of 3.38 and a thickness of 1.52mm. Local optimization is applied to fine-tune the location and size of each slot as well as the location of the feed position. The design objectives were to allocate the antenna resonance at a frequency less than 2 GHz, ensure a broadside radiation at the resonant frequency and increase the antenna directivity. The results indicate that the performance of the fractal antenna can be considerably improved by local adjustment of its geometry parameters. The optimized fractal antenna has been fabricated and its performance has been measured.

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