



# Design and Optimization of E Shape Multi Band Microstrip Patch Antenna Using Fractal Geometry for Wireless Communication

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References

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**Abstract**

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In this paper an E shaped multiband fractal microstrip antenna proposed. The proposed E structure uses self similar fractal concept. The geometry is extended up to two iteration which resonates at seven multiband frequencies. The proposed antenna operates in 1–2 GHz (L-band), 2–4 GHz (S-band) and 4–8 GHz (C-band) frequencies and finds uses for military and secure long distance communication and C band frequency uses like satellite communication, Wi-Fi, and Radio Detection and Ranging. All designed antennas are optimized by IE3D antenna simulation tool with FR-4 material having 4.4 dielectric constant and loss tangent = 0.02. The parameters of all antennas have been examined in terms of directivity, VSWR, return loss, resonant frequency, bandwidth and gain.

**Keywords:** E Shape; Fractal Geometry; Gain; Microstrip Antenna; Multiband; Resonant Frequency; Return Loss

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