Optimization of a SPIRAL UWB antenna in PATCH configuration for [6-18]GHz band

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Abstract

Spiral antennas have numerous applications due to their wide bandwidth and circular polarization. Unfortunately, unless integrated with differential circuits, they generally suffer from two main disadvantages. First of all, their input impedance is not 50 ohms, and thus a wideband balun for impedance matching is required. Second, the central feeding leads to high fabrication cost, especially at high frequencies and makes planar array design more of a challenge. This project aims at synthesizing a PATCH spiral antenna through a Particle Swarm Optimizer (PSO), in order to obtain an UWB behavior inside the band between 6 and 18 GHz.

Reference Bibliography: Evolutionary Optimization [10]-[53]; Evolutionary Optimization and Ultrawideband Antennas [1]-[9].


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