HF RFID Spiral Inductor Synthesis and Optimization

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Abstract:

In this contribution, we discuss a planar spiral inductor synthesis method which generates physical dimensions of the HF RFID inductor according to the specified equivalent circuit parameters. A numerical model for spiral coil based on the partial element equivalent circuit (PEEC) method is combined with nonlinear optimization engine to optimize and synthesize coils. The main application is a HF RFID standard antenna for 13.56 MHz. The numerical model includes skin and proximity effects and is implemented in Matlab.