

LOOP ANTENNA

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ABSTRACT

Antenna design becomes vital and hot topic in this century leading to different types of antenna design and their propagation being discussed in many journals, magazines and conference papers. In this project, a planar type of loop antenna is designed and implemented to operate at a frequency of 900MHz (890-960 MHz) which can be used for RFID application. The antenna is designed, etched and tested for their return loss and performance. The design is also simulated using ADS software in order to achieve the antenna parameters. In this receiver design, the entire design is examined using the ADS momentum on the layout window. When doing the fabrication, the stated receiver element is printed and etched on FR-4 dielectric material. The substrate used has a dielectric constant of 4.34, a thickness of 0.1cm, and conduction loss of 0.01. Gain, efficiency and S-parameters performances were observed after simulation was completed from their graphs. The simulated results were compared with corresponding measurement of the tested fabricated hardware.

The designed antenna was analyzed and checked, and fulfilled the overall requirements of the specified aim which was to design a loop antenna that operates in 900MHz.

Keywords: ADS (Advanced Design System), RFID