

ABSTRACT

Radio Frequency Identification (RFID) is a wireless system for automatically identifying and allowing the retrieval of data without contact. Before the advent of RFID technology, barcode systems were used to perform identification processes in the presence of touches. Therefore, it can be argued that RFID perfected the previous system. Today RFID is widely used in the fields of management, mobile phones, security, business, even medical.

On RFID there are two important components, named the RFID tag antenna and the RFID reader. In addition to requiring a small antenna, RFID also requires antenna with good performance. Therefore, the antenna was designed by adding an Artificial Magnetic Conductor (AMC) based reflector. In previous research, AMC was able to improve the performance of an antenna, which is gain.

At the Final Task was made a circular monopole planar antenna for RFID applications with FR-4 substrate materials that had a dielectric constant of 4.3 and a thickness of 1.6 mm. The results of antenna simulations that have been integrated with AMC square patch 3x3 works at 924 MHz frequencies have bandwidth of 61.65 MHz, VSWR of 1,24, gain of 5,447 dBi, and unidirectional radiation patterns. At measurements obtained the VSWR value and return loss according to the desired specification that is below -10 dB and 2 with a bandwidth of 61.6 MHz with a gain of 5 dBi.

Keywords: Microstrip Antenna, Artificial Magnetic Conductor, RFID