

AIP Conference Proceedings, Volume 2579, Issue 1, 6 October 2023, Article number 020009, 2nd International Symposium on Engineering and Technology, ISETech 2021, Virtual, Online, 5 October 2021, Code 193320

UHF RFID Tag Antennas for Wearable Devices

Abstract

RFID technology is evolving as one of the most popular technologies in this era of technology, fast gaining attention due to high demand from users and rapidly garnering interest in scientific and commercial areas. The frequency used will be determined by the RFID application, and the power rate will change as the frequency increases. Without a straight line of sight, the RFID tag antenna can identify distinct objects. For wearable applications, several RFID tag antennas are too big to match the chip impedance. In order to overcome that problem, a small tag RFID tag antenna for UHF is designed which aimed to be operated from 865 to 867 MHz for assembling production. Impedance matching is used to transform the impedance of the radiating antenna, to match the chip impedance. To design and simulate the designed antenna, CST Microwave Studio software has been used in this project to get the desired result which is the return loss and gain. The design for this antenna is very simple to ease the fabrication process. Overall, the construction comprises a spiral-shaped loop RFID tag antenna printed on Roger substrate RO4350 with a height of 0.8 mm and a dielectric constant of 3.3. The simulation result of the reflection coefficient of the antenna is 866 MHz at the operating frequency. © 2023 American Institute of Physics Inc.. All rights reserved.