Abstract

Radio Frequency Identification is the wireless technology that uses radio waves to automatically identify items within certain proximity. This process involves tagging items with a transmitter which will send bursts of information. Passive RFID tag consists of a microchip connected with an antenna. The passive tag uses the electromagnetic pulse from readers as a power source to transmit its identifier. So proper impedance matching between the antenna and the chip is very important in passive RFID tag design. The RFID system performance characteristics and the range of a tag depend on the impedance matching. A load impedance of RFID microchip is a nonlinear whose complex part varies with the frequency and the input power [2]. This paper presents simulated results of a UHF RFID dipole antenna and inductively coupled with a small rectangular loop. Such a design provides controlled values of inductive reactance that is required for obtaining good impedance match of the antenna to microchip. The proposed dipole antenna is simple and robust in design, which enables low-cost while realization.

References

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Index Terms

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Keywords

Radio Frequency Identification (RFID); Microchip; Impedance; Ultra High Frequency (UHF); Passive