Dielectric Resonator Antenna as a RFID Tag for Human Identification System in Wrist Watch

G. D. Makwana
Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT),
Gandhinagar, India,
Sankalchand Patel College of Engineering,
Visnagar, India
gmakwna@gmail.com
Deepak Ghodgaonkar
Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT),
Gandhinagar, India,
deepak_ghodgoankar@daiict.ac.in

Submitted: Mar 29, 2013 ***Accepted: May 8, 2013*** ***Published: June 5, 2013***

Abstract—Radio Frequency Identification (RFID) has been considered as a time and money-saving solution for a wide variety of applications, such as manufacturing, supply chain management, and inventory control. However, there is a growing need in the RFID community to research and find out the tag with miniature, circular polarized radiation patterns, dual band operation, high radiation efficiency and high bandwidth operations. This paper presents compact radio frequency identification (RFID) tag for human identification system in wrist watch. Dielectric resonator antenna (DRA) with patch is used as an active tag. The proposed antenna is operated on dual frequency bands. Simple microstrip line is used as a feeding mechanism. It is

operated at 2.4 GHz and 5.8 GHz frequency band. It has circular polarization radiation patterns. Simulation results are presented on various parametric studies on the RFID tag.

Keywords- Dielectric Resonator Antenna, RFID tag, human identification system