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| **Title:** | In Body Antenna for Monitoring Pacemaker | | |
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| **Abstract:** |  |
| Heart Attack is now a very common disease in our modern lifestyle. It occurs when heart is pumping too quickly or slowly or when body does not get enough blood. A pacemaker is an electrically charged medical device which is used to control irregular heartbeats called arrhythmias. It implants under the skin of our body. This paper represents an In-body patch antenna, which is designed on pacemaker with resonance frequency of 2.464 GHz. The antenna will be used to monitor the condition of the pacemaker wirelessly, weather it works properly or not. It can also be monitored heart function such as beat rate. The antenna is designed to operate at Industrial, Scientific, and Medical band (2.4 GHz-2.48 GHz) where the dimension of the antenna is and the dimension of the pacemaker is 40 × 30 × 10 mm 3 . The pacemaker box is imitated in the box of a perfect electric conductor, which is used as a ground of the proposed antenna to maintain the compact size. The pacemaker embedded in the 2/3 muscle-equivalent phantom where the distance between the top of the phantom and the antenna is changed and analyzed. The substrate and superstrate is chosen Rogers R03010 for its flexibility. At operating frequency (2.464 GHz), Reflection coefficient, Voltage Standing Wave Ratio, total efficiency, and radiation efficiency are found −28.37 dB, 1.08, −35.50 dB, and −35.50 dB. Besides that, far-field radiation characteristics and biocompatibility of this antenna also discussed in this paper to ensure that a comfortable design for wireless monitoring of pacemaker. CST microwave studio is used to design this antenna as well as to calculate the findings. | |