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| **Title:** | Design and Performance Test of an Implementable Rectenna Encapsulated in a Human Tissue Bio-Case Model | | |
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| **Abstract:** |  |
| Modern implanted medical devices perform a range of diagnostic and therapeutic activities such as sensing, monitoring, and medication administration. Although these medical devices can communicate with the outside world, they face a number of difficulties including inefficient power supplies, size reduction, and short working lifespans. An implantable antenna designed with a rectifier circuit has been proposed in this research paper. Moreover, the rectifier circuit’s (Rectenna) performance has been evaluated by its efficiency and the output voltage at the receiver’s end. This report depicts a thorough process of the design and simulation results for both antenna and a rectifier circuit. The patch antenna was created to function at the Industrial, Scientific, and Medical (ISM) band within the frequency range of (902-928) MHz which is encapsulated between the skin and muscle layer to create a practical simulation environment. To transfer the maximum power, a matching network circuit has been designed. To convert RF voltage to DC voltage, a double-stage voltage rectifier circuit was used. | |