|  |  |  |  |
| --- | --- | --- | --- |
| **Title:** | A Novel Design and Miniaturization of a Scalp Implantable Circular Patch Antenna at ISM Band for Biomedical Application | | |
| **Author(s) Name:** | Raja Rashidul Hasan, Md. Azad Hossen Shanto, Sujan Howlader, Sharmin Jahan | | |
| **Contact Email(s):** | sujan@aiub.edu | | |
| **Published Journal Name:** | Intelligent Systems Conference (IntelliSys), 2017 | | |
| **Type of Publication:** | Conference Paper | | |
| **Volume:** |  | Issue |  |
| **Publisher:** | IEEE | | |
| **Publication Date:** | 26 March 2018 | | |
| **ISBN:** | 978-1-5090-6435-9 | | |
| **DOI:** | 10.1109/IntelliSys.2017.8324286 | | |
| **URL:** | http://ieeexplore.ieee.org/document/8324286/ | | |
| **Other Related Info.:** |  | | |
|  | | | |

|  |  |
| --- | --- |
| **Abstract:** |  |
| This paper represents a novel design and miniaturization of a microstrip circular patch antenna for implantation in scalp of Head which operates in Industrial Scientific and Medical (2.4 GHz to 2.4835 GHz) Band. ISM band is chosen for larger band width for medical application. The designed implantable antenna is proposed and observed the Return loss, VSWR, Radiation pattern and also compared the results at different Dielectric material. The antenna is designed with 6 mm radius of the ground plane, lower level patch and upper level patch. The special feature of this antenna is suitable for implantation and patient safety. The antenna is embedded in human tissue by creating the human phantom model in CST microwave studio. The Return loss is observed −14.64 dB for Scalp at resonance frequency of 2.46 GHz which lies in ISM (2.4–2.468 GHz) bandwidth larger band width. For monitoring the temperature, glucose level and other medical application this antenna can be widely used. In this work the Copper is used as a patch material. | |