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| **Title:** | On-Body Humidity Sensing Antenna with Polyimide for BAN Applications over 5G Networks | | |
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| **Abstract:** |  |
| This paper proposes an on-body humidity sensing antenna with polyimide working in the 5G network. The chosen operating frequency is 38 GHz which also lies in the mm-wave band. This paper discusses two antennas. The first antenna is designed using polyimide film and the other using polyimide film as a superstate with Rogers RT 5880 as the main substrate. The first antenna exhibits an intensive radiation absorption of 38.7 W/kg for every 10g of tissue, which is mitigated by the design of the second antenna. Therefore, the second antenna is analyzed for on-body humidity sensing. Due to polyimide's high sensitivity towards humidity, any change in humidity is detectable through the changes in the dielectric constant of polyimide and changes in the resonant frequency. | |