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| **Title:** | Compact Design of Microstrip Patch Antenna for 5G Applications Using Millimeter Wave | | |
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| **Abstract:** |  |
| In this paper, a low-profile slotted microstrip patch antenna with an operating bandwidth of 34.093GHz - 38.607GHz has been proposed. The antenna has been simulated using Computer Simulation Technology Microwave Studio (CST MWS), using annealed lossy copper for the ground and patch layers while employing lossy Rogers RT5880 as the dielectric substrate material. Antenna feeding was done through a microstrip line, and a comb-shaped slot was cut out from the conducting patch layer. The simulated results for the design report a return loss of approximately -22.13 dB at the resonant frequency of 37.18 GHz, a main lobe gain of 5.9468 dBi, and efficiency of 84.47%. Additionally, the VSWR value is 1.1698 at the resonant frequency and within the acceptable range of 0 to 2 everywhere else over the working bandwidth. Comparison of the simulation with existing literature suggests that the performance of the proposed antenna achieves the requirements for fifth-generation 5G mobile network applications. | |