A Novel Quad-Band Circularly Polarized Planar Slot Antenna using Triple Strips

Reshmi Dhara¹ and Taraknath Kundu²

¹Sikkim National Institute of Technology

²National Institute of Technology Sikkim

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Abstract

Herein a simple, compact quad-band circularly polarized monopole antenna is proposed for multisystem application. The monopole antenna is constructed via triple strip fed by the microstrip line, a ground plane on the reverse side of the substrate having a slotted square loop, and two stubs which are slotted employed transversely across the diagonal line on the square loop. This proposed antenna is simulated and fabricated to stimulate a number of resonances. Optimizations of the antenna design parameters combined the resonances, and thus obtained a wide multi impedance bandwidth (IBW). The measured multi IBW at $S_{11} < -10\text{dB}$ ranges from 4.63 – 5.47 GHz, 6.08 – 6.59 GHz, 8.26 – 9.59 GHz, 10.05– 10.42 GHz, and 11.81 – beyond 15 GHz. The simulated quad axial ratio bands are 217, 269, 223 and 564 MHz at centre frequencies (f_c) of 5.3, 9.0, 12.1 and 13.8 GHz, correspondingly. Implemented antenna radiation features are also presented and deliberated.

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