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(57) Abstract :
The present invention discloses a novel compact triple-band monopole dual-feed patch antenna for 5G sub-6 GHz wireless applications. The FR-4 epoxy dielectric material (or substrate), which has a relative permittivity of 4.1 and a dielectric loss tangent of 0.02, is used to design the antenna, which has dimensions of 36 mm × 20 mm x 1.6 mm. The antenna structure comprises of a dual-feed slotted rectangular patch (radiating antenna element) with defected ground plane. The radiating patch without slots and strips produces a single band from 2.4 to 5.5GHz with resonance at 2.9GHz. To realize the desired triple bands at N77/N78 (3.3-4.2GHz), N79 (4.4-5.0GHz) and N47 (5.85-5.92GHz) frequency spectrums, a pair of half-circle shaped slots with a radius 5mm each are added to the radiating patch. Moreover, a small circular slot of radius 1mm, rectangular slot of dimensions 1mm x 16mm and couple of inverted L-shaped strips adjacent to the feed line are used to further improve the impedance matching properties at the operating bands. Hence the disclosed invention operates at 5G sub-6GHz N77/N78, N79 and N47 frequency bands.

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