Abstract

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A Novel Compact Ultra-wideband Monopole Microstrip Filtenna

In this study, a novel compact ultra-wideband monopole microstrip filtenna having two built in band-rejection filters has been proposed and presented. The first filter is inverted U-shape slot etched within the patch, while second one is two concentric rectangular slots etched within the partial ground under feeder. These filters reject WiMax/LTE band (3.3 - 4.0 GHz) and WLAN band (5.0 - 5.9 GHz). The proposed filtenna has been designed, investigated and optimized using the microwave CST_Studio simulator. The presented filtenna structure is mounted on FR4-substrate, and it resonates within the band from 3.0 GHz up to 10.2 GHz. Simulation results shows that using defective partial ground (DEPG) along with the patch slots (PS), the resonance frequencies as well as the operating bands of the patch filtenna can be controlled. The proposed filtenna has been fabricated and its parameters are measured. Good agreement has been obtained between simulated and measured parameters.