

Abstract

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New Compact Circular Ring Microstrip Patch Antennas

In this paper, three different compact circular ring microstrip patch antenna structures have been proposed. These antennas have been analyzed, investigated and optimized using the CST-MW-simulator. The proposed designs are mainly based on the concept of patch shape reconfiguration while its overall dimensions are kept constant. The objective is to design dual and/or triple broadband antennas resonate within the fourth generation band (4G). The presented antennas are simulated and fabricated on cheaper lossy FR-4 substrate, and their parameters are measured and compared. The obtained results show that the proposed antenna structures resonate within the 4G frequency band. The operating bandwidths have been varied between 270.0 MHz and 1000.0 MHz (about 4% up to 7% of center frequency). In addition, maximum VSWR value of less than 1.5 has been achieved. The obtained results verify the validity and the benefits of reconfiguring the patch shape. Finally, good agreement has been obtained between simulated and measured parameters.