

# Abstract

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## **Novel Compact Microstrip Filtenna Structures**

Abstract: In this paper, Microstrip Filter\_Antenna structures "MFA" have been proposed, analyzed &#97 &#110 &#100 investigated in details using the CST\_MW Studio. This was carried out using a full parametric study of reconfigure the ground plane along with an arbitrary defective patch shape. Reconfigurable ground structure "RGS" includes full ground "FG", partial ground "PG" (single ground strip), &#97 &#110 &#100 Digital ground "DG" (N\_Isolated ground strips). Defective patch "DP" includes H\_Slot shape &#97 &#110 &#100 Edge\_Slot shape, where the overall patch dimensions are kept constant. The proposed MFA structures are mounted on a lossy FR-4 substrate having RGS &#97 &#110 &#100 arbitrary slots shape near the patch edge. The proposed MFA structures are referred to as H\_Slot patch filtenna "HSPF" &#97 &#110 &#100 Edge\_Slot patch filtenna "ESPF". Simulation results showed that the proposed Filtennas resonate at multi-frequencies having different operating bands (narrowband, broadband, &#97 &#110 &#100 ultra-wideband). The presented Filtennas are very simple circuits &#97 &#110 &#100 very compact in size. Furthermore, they cover a wide frequency spectrum for many wireless applications (4G wireless systems). The proposed filtenna structures have been fabricated &#97 &#110 &#100 their parameters have been measured. Acceptable agreement has been obtained between simulated &#97 &#110 &#100 measured filtenna parameters.