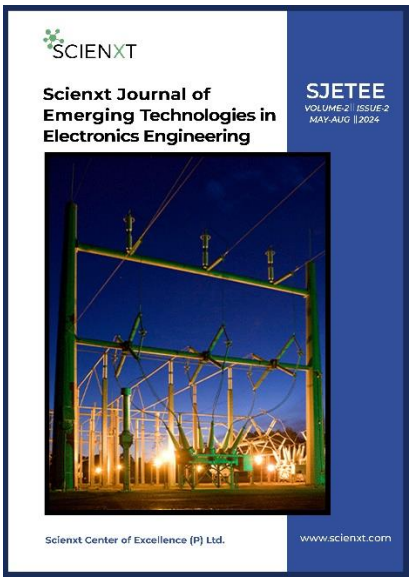

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A coplanar mimo antenna with reduced mutual coupling for ism band applications

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Abstract:

This paper discuss about problems of mutual coupling and uses transmission coefficient S_{12} as means tocharacterize it. The lesser the value of S_{12} less amount of power is coupled between ports. This paper describes design and optimization of rectangular patch antenna in ISM band, operating at centre frequency of 2.45GHz. Such 4 elements are placed are placed in a matrix of 2X2 separated by distance of $\lambda/2$ and mutual coupling of -23dB is observed. Since ground plane is common and continuous between 4elements amount of unwanted coupling is more 4 separate ground planes for 4 separate antennas is investigated. Mutual coupling for such antenna is reduced by almost 10Db. The simulated and fabricatedresults align with the conclusion that separate ground planes are better in performance for mutual coupling. Gain of MIMO antenna system is observed to be increased from 2.8dB to 3.7dB for modified MIMO antenna. Proposed MIMO antenna can be used in high efficiency ISM band applications**.**

Keywords:

MIMO Antenna, MSA, mutual coupling, gain, impedance matching.