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Enhanced Isolation MIMO Antenna with DGS Structures for Long Term Evolution Systems

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Abstract: In this communication, a new multi-antenna system based on two microstrip antennas is analyzed and proposed for LTE (Long Term Evolution) terminals. The multi-input multi-output (MIMO) antenna is printed on a FR4 substrate with size of 60×100×1.6 mm3. The proposed design, in its basic form, operates around 2.3 GHz, and provides a transmission coefficient of -19 dB. In order to improve the isolation between the two antenna ports, some rectangular and circular slots are inserted in the ground plane between the two antennas. With this modification, the mutual coupling of -59 dB was achieved, which are 40 dB improvements over the initial antenna. The simulated results are presented and discussed in term of reflection coefficients, transmission coefficients and radiation patterns.

Keywords : MIMO antenna, mutual coupling, LTE (Long Term Evolution) terminals