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पेटेंट कार्यालय का एक प्रकाशन
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(54) Title of the invention : A COMPACT QUAD-BAND MULTIPLE-INPUT MULTIPLE-OUTPUT ANTENNA SYSTEM FOR WIRELESS APPLICATIONS AND ITS OPERATING METHOD THEREOF

(51) International classification (31) Priority Document No (32) Priority Date (33) Name of priority country (86) International Application No Filing Date (87) International Publication No (61) Patent of Addition to Application Number Filing Date (62) Divisional to Application Number Filing Date	(71)Name of Applicant : 1)Dr. Koduri Sreelakshmi Address of Applicant :Sr. Assistant Professor, Department of Electronics and Communication Engineering, GMR Institute of Technology, Rajam, Andhra Pradesh - 532127, India Srikakulam Andhra Pradesh India 2)Mr. Biswa Ranjan Swain 3)Dr. Sanjit Kumar Swain 4)Dr. Amiya Bhusana Sahoo 5)Dr. Rajiv Pathak 6)Dr. Sumant Kumar Mohapatra 7)Dr. Lopamudra Das 8)Dr. Manas Ranjan Jena (72)Name of Inventor : 1)Dr. Koduri Sreelakshmi 2)Mr. Biswa Ranjan Swain 3)Dr. Sanjit Kumar Swain 4)Dr. Amiya Bhusana Sahoo 5)Dr. Rajiv Pathak 6)Dr. Sumant Kumar Mohapatra 7)Dr. Lopamudra Das 8)Dr. Manas Ranjan Jena
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(57) Abstract :

The system comprises a dielectric substrate (102) having a pair of substantially identical antenna elements (104, and 106) arranged on a top surface (102A) and a partial ground plane (110) on a bottom surface (102B). Each antenna element is excited using an asymmetric coplanar strip feed line (104A/106A) and integrates an angled U-shaped monopole radiator (104B/106B), a flipped G-shaped monopole radiator (104C/106C), and an inverted L-shaped monopole radiator (104D/106D) formed by a vertical stub and a horizontal strip. The combined radiator configuration generates four distinct resonant modes at approximately 1.84 GHz, 2.46 GHz, 3.64 GHz, and 5.35 GHz. A rectangular decoupling structure (108) is positioned between the antenna elements to reduce mutual coupling while maintaining a compact inter-element spacing of approximately $0.22\lambda_0$, along with and a central located rectangular patch element (113). The proposed antenna achieves high isolation, compact size, and multi-band performance for modern MIMO-enabled wireless devices.

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