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# Single Band-Notched Ultrawideband Multi-input/Multi-output Antenna for High Isolation

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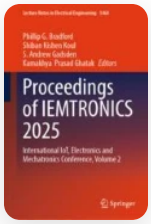

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## Abstract

This research proposition presents a small, circularly polarized multi-input/multi-output (MIMO) antenna for ultrawideband (UWB) applications with one band-notch characteristic and enhanced inter-element isolation. The antenna prototype is small in size, measuring 28 × 26 × 1.57 $mm^3$, making it suitable for integration into space-constrained devices. To minimize mutual coupling between the MIMO elements, a decoupling stub is placed at a strategic position. The decoupling mechanism achieves a significant amount of reduction in mutual coupling to levels of up to − 50 dB within the operational band. High isolation is critical for the purpose of providing independent paths of signals within the MIMO system, and hence, overall performance is improved. The designed antenna has very good impedance matching across the full 3–12 GHz UWB band indicated by a return loss (S11) of below − 10 dB and VSWR < 2. The 9 GHz wide impedance bandwidth guarantees efficient signal transmission and reception within the allotted UWB range. The simulation verifies the antenna performance, confirming that it is best suited for UWB applications requiring compactness along with high isolation.

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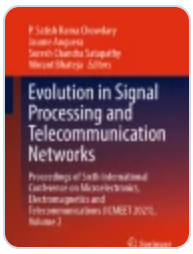



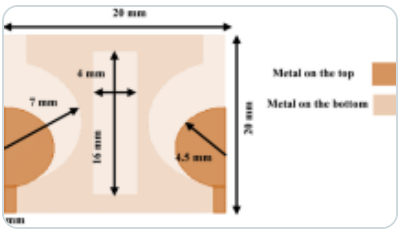

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