Semicircular-Shaped Dual-Band MIMO Antenna for Wideband Sub-6 GHz Wireless Applications

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Abstract:
A compact semicircular-shaped self-isolated dual-band Multiple-Input-Multiple-Output (MIMO) patch antenna incorporated with defected ground structure (DGS) for wideband application at the sub-6 GHz frequency band is presented in this paper. The return loss, Mutual Coupling, Gain, Radiation Patterns, Envelope Correlation Coefficient (ECC), and Diversity Gain(DG) are studied over the1.3-7.3 GHz frequency band. Over the entire 6GHz bandwidth, the first resonant frequency appears at 2. 691GHz, with a return loss of -23.61dB, and the second resonant frequency at 4.429 GHz, with a -32.86dB return loss, is measured. In addition, -45dB port isolation is achieved at a higher resonating frequency, and a peak gain of 20 dB is observed at 4.1 GHz. This dualband MIMO antenna shows significant results for wideband at sub-6 GHz wireless applications.

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