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A Parasitic Resonator-Based Diamond Shape Microstrip Antenna for Ultra-Wide-Band Applications

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Abstract : This study proposes a diamond-shaped microstrip patch antenna for ultra-wideband applications. The antenna is made up of a diamond shape radiating patch, partial ground plane, and three asterisk-shaped parasitic elements. The parasitic elements are positioned above the ground plane to enhance the bandwidth and gain. The proposed antenna has a compact dimension of 30 x 25 x 1.6 mm3 and achieves an overall bandwidth (S11<-10dB) is 5.8 GHz from 2.7 GHz to 8.5 GHz. The antenna attains more than 4 dBi realized the gain and 80% efficiency over the bandwidth with omnidirectional radiation pattern. The design and simulation of the proposed antenna are performed in Computer Simulation Technology (CST) Microwave Studio. The observation during the analysis of the simulated data reveals that the proposed antenna is suitable for Ultra wide-band (UWB) applications where high gain is required.

Keywords : diamond-shaped antenna, microstrip antenna, parasitic resonator, UWB applications
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