

A Miniaturized Circular Patch Antenna Based on Metamaterial for WI-FI Applications

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Abstract : In this work, we present a new form of miniature circular patch antenna based on CSRR metamaterials with an extended bandwidth proposed for 5 GHz Wi-Fi applications. A reflection coefficient of -35 dB and a radiation pattern of 7.47 dB are obtained when simulating the initial proposed antenna with the CST microwave studio simulation software. The notch insertion technique in the radiating element was used for matching the antenna to the desired frequency in the frequency band [5150-5875] MHz. An extension of the bandwidth from 332 MHz to 1423 MHz was done by the DGS (defected ground structure) technique to meet the user's requirement in the 5 GHz Wi-Fi frequency band.

Keywords : patch antenna, miniaturisation, CSRR, notches, wifi, DGS

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