



A Novel Maple-Leaf Shaped UWB Antenna with a 5.0-6.0 GHz Band-Notch Characteristic

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Abstract:

A novel microstrip fed ultra-wideband (UWB) antenna with different band rejection techniques is presented in this paper. The antenna consists of a maple-leaf shaped radiator fed by a microstrip line with a finite ground plane on the other side of the substrate. The size of the UWB antenna is $30.5 \times 35.5 \text{ mm}^2$ which is only about $0.3 \times 0.35 \lambda^2$ at 3 GHz. The calculated impedance bandwidth of the proposed antenna ranges from 3 GHz to 14 GHz with relatively stable radiation patterns. Two different techniques have been implemented to achieve band-notch characteristic in the 5.0-6.0 GHz WLAN frequency band. The first one uses an H-shaped slot cut away from the radiating patch while the other one uses two rectangular slits in the ground plane creating defected ground structure (DGS).

Published In:

Progress In Electromagnetics Research PIER C , vol. 11 , pp. 39-49