

Co-design Planar Antenna for “UWB”

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In this paper a wide band antenna to cover the UWB band is proposed. One of the main features of this antenna is the rejection frequency in the Wi-Fi band (around 5.2 GHz). The analysis results of the antennas parameters, S_{11} , VSWR and the radiated pattern, are presented. The communications, in special wireless, are in the top of attention of researchers. The need of a high velocity bit transmission rate and the great number of services that restrict the free operation band ask for new solutions to the communications systems. The UWB (Ultra Wide Band) technology seems to be very prominent for this application, since it operates in a large band with very low power transmission. The antenna in the UWB applications plays an important role. This is the reason why it is in focus. In this study for a new antenna, before goes to step measurement, a commercial electromagnetic software CST microwave Studio version 5.0 is used to simulate antennas parameters. The antenna geometry was simulated using a dielectric with relative permittivity $\epsilon_r = 4.4$. The geometry obtained here is optimized to reduce antenna dimensions. The co-design antenna (Fig. 1) presents the behavior of a classical large band antenna and the behavior of a rejection band structure. In our case, the rejection was selected to be around the Wi-Fi band (5.2 GHz). From Fig. 2, we can see that the new proposed antenna works with reflection coefficient bellow of -10 dB in the band of 3.1 to 4.75 GHz and from 5.6 to 13.2 GHz.

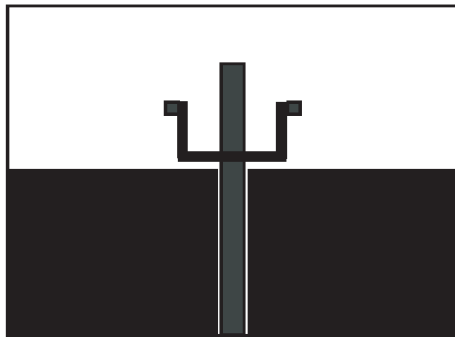


Figure 1: Co-design of studied patch antenna.

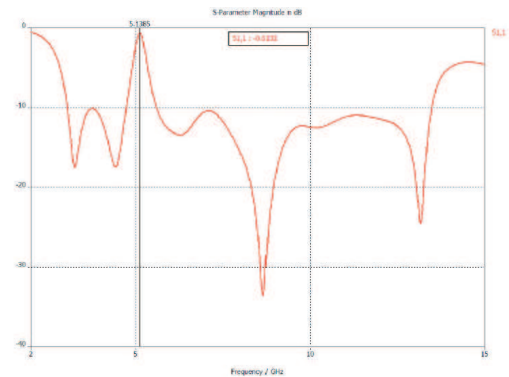


Figure 2: Parameter S_{11} of the UWB antenna.