A proximity fed annular slot antenna with different a band-notch manipulations for ultra-wide band applications, Progress in

Elsayed E. M. Khaled, Ayman A. R. Saad, and Deena M. Salem

Abstract:

A proximity-fed annular slot antenna for UWB applica-tions with a band rejection using different techniques is presented. The proposed antenna provides an UWB performance in the frequency range of \( \frac{2.84}{8.2} \) GHz with relatively stable radiation parameters. Three different techniques to construct a resonant circuit for the proposed antenna are investigated to achieve the band-notch property in the band \( \frac{5.11}{5.69} \) GHz band which include the WLAN and HIPERLAN/2 services without degrading the UWB performance of the antenna. Three resonators are considered; a single complementary split ring resonator (CSRR), a complementary spiral loop resonator (CSLR) and a spurline slot. Furthermore, the band-notched resonance frequency and the bandwidth can be easily controlled by adjusting the dimensions of the resonator. The proposed antenna is simulated, fabricated and measured. The measured data show very good agreements with the simulated results. The proposed antenna provides almost omidirectional patterns, relatively flat gain and high radiation efficiency over the entire UWB frequency excluding the rejected band.

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