



Numerical and Experimental Investigation of a Novel Ultrawideband Butterfly Shaped Printed Monopole Antenna with Bandstop Function

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Abstract:

In this paper, a novel compact butterfly shaped printed monopole antenna for ultra-wideband (UWB) applications is presented. The proposed antenna is designed with a standard printed circuit board (PCB) process for suitable integration with other microwave components. The antenna prototype is designed then fabricated and tested experimentally. The calculated impedance bandwidth of the proposed antenna ranges from 3 GHz to 13 GHz for a 10 dB reflection coefficient (S_{11}) while the measured impedance bandwidth ranges from 3 GHz to 10.8 GHz covering the whole UWB frequency range. The measured antenna radiation patterns show relatively stable radiation patterns with almost constant gain over the whole frequency band of interest. By introducing a slit ring resonator (SRR) in the feedline, a bandstop of 830MHz from 5.0 to 5.83 GHz for band rejection of wireless local area network (WLAN) can be achieved. So, the proposed antenna is considered a good candidate for future UWB communication systems.

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