

Design Of UWB Antenna With Triple Band- Notched Characteristics For Wifi/Wimax/HIPER-LAN/ITU Bands

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Abstract

This paper presents a small size microstrip antenna for WiMAX/WiFi/LTE wireless applications. The microstrip patch antenna consists of different shaped designs. They are included in the complex shapes of E, F, back to back V and inverted back to back L shaped dimensional. The above shapes are slotted with shorting walls. The antenna has the asymmetric structure with the total dimensions of the patch is $4 \times 5.1 \times 1 \text{ mm}^3$. The simulated the patch covering resonate frequencies are 3.5, 6, 10.2GHz which meets the wide bandwidth of (3-3.8) GHz WLAN, (5.4-6.5) GHz HIPER-LAN, WiMAX & (9.3-10.4) GHz UWB, IEEE-802.15.3 standard wireless applications.

INTRODUCTION

The microstrip antenna is an excellent portable device for all wireless standard applications. It used for military, mobile, WiMax/LTE/WiFi wireless standard purposes. It is designing the low cost, light weight and small size for wideband frequency usage. The main drawback of the patch design for narrow bandwidth is problematic. Many researchers are focusing the enhancement of their dimensions, usage of thick substrate and port configurations. C-shaped metal strip, an inverted L-shaped strips [1],[6], inverted F shaped slot [19]; E-slot [2], [4-6],[12],[20],[21],[26]; monopole slot [11]; H shaped slot [4]; back to back V shaped [8], L probe feed with slot [3-4,6]; jerusalem cross-shaped slot [15],[17]; F shaped slot [7],[9];back to back F shaped [9]; T shaped slot [10],[23], M shaped slot [13]; S-shaped slot [16]; Circular Axe-Shaped [17]; U shaped slot [22];parasitic patches [25]. Newly the microstrip patch designed for complex shapes which included in the F- shaped slot, E shaped slot, back to back V shaped slot and inverted L shaped patch. It proposed for wideband frequency ranges and also given bandwidth is wider than others. In this paper, a compact complex shape slot microstrip antenna that is significantly smaller than the conventional patch antenna or any other modified structure [13] reported in the open literature is presented. The size of the proposed patch antenna covering the 3.5 GHz, 6GHz and 10.2GHz frequencies and size of the antenna is $4 \times 5.1 \times 1 \text{ mm}$ thick material by using patch shorted to ground electromagnetically coupled antenna.

Design of antenna:

