

# **INVESTIGATION OF UWB ANTENNA SLOT EFFECT**

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## ABSTRACT

This paper proposes about compact planar ultra wideband antenna having frequency band notch function as presented. The main purpose of using this compact planar ultra wideband antenna is to do the band rejected filtering properties in the WiMAX/WLAN at 2.4 GHz to 5 GHz. By etching the slot on the top of the patch and the result are achieved. The parameters that will be considered while doing this project are the matched impedance, stable radiation pattern, band rejection and constant gain. This antenna will be designed to operate at certain frequency on FR4 substrate with  $\epsilon_r = 4.7$  and the simulation will be conducted by using Computer Simulation Technology (CST) software. The performance of simulation results of these antennas will be compared and analysed. The final antenna designs will be fabricated and measured. To conclude the proposed concept, the simulation and measurement results will be compared and analysed.

Keyword: Slot, band notched, ultra wideband (UWB) antenna.

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# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

Antenna is defined as a mean for radiating or receiving radio waves.[1] It can convert radio frequency waves (RF) into altering current and vice versa. It enable wireless communications between two or more stations by directing signals toward the stations. A typical antenna consist of metal conductor where the transmission line is either a coaxial line or a waveguide. [2] The antenna itself has improves modern wireless communication systems and at the same time the demand for antennas have increase dramatically.

Microstrip antenna is the simplest configuration of an antenna that can be printed directly onto a circuit board. It consists of a radiating patch on one side of a dielectric substrate which has a ground plane on the other side. The study of microstrip patch antennas has made great progress in recent years. Compared with conventional antennas, microstrip patch antennas have more advantages and better prospects. They are lighter in weight, low volume, low cost, low profile, smaller in dimension and ease of fabrication and conformity.[3] It can provide dual and circular polarizations, dual-frequency operation, frequency agility, broad band-width, feed line flexibility, beam scanning omnidirectional patterning. [3]