

# 新型具頻帶截止功能超寬頻平面式天線設計

學生：洪崇育

指導教授：鍾世忠 教授

國立交通大學電信工程學系（研究所）碩士班



此篇論文設計了兩支新型的超寬頻平面印刷式天線，首先介紹的是一支具圓弧邊緣結構之印刷式單極天線，它是以平面單極天線為設計基礎再加上改變接地面形狀所構成的超寬頻天線；此天線在頻段 3.1GHz~10.6GHz 其反射損失小於 -10dB，其輻射場型(在 3GHz 至 9GHz 頻寬範圍內)和單極天線的輻射場型相似。

第二支超寬頻天線是以第一支平面單極天線為設計基礎，與第一支超寬頻天線不同處在於此天線具有頻帶截止的功能，此天線匹配頻寬範圍從 3.1GHz~5GHz、6GHz~ 10.6 GHz，在截止頻帶中天線平均增益小於 -18dBi，其他頻段的場型與增益則與第一支天線雷同。

# Design of Novel Ultrawide-Band(UWB) Planar Antennas With Band-Notch Function

Student : Chong-Yu Hong

Advisors : Prof. Shyh-Jong Chung

Department of Communication Engineering  
National Chiao Tung University



In this thesis two novel ultra wide-band planar printed antennas have been designed. An introduction begins with a printed monopole antenna with arc-edged structure. The concept of designing this antenna, which makes it different from the traditional monopole antenna, is to modify its shape of ground plane. This design causes its return loss lower than  $-10$  dB at 3GHz ~ 10.6GHz frequency range and the radiation pattern within this range is highly similar to the monopole antenna.

The second ultra wide-band antenna is based on the first planar monopole antenna. Unlike the previous one, this antenna with a Stop-band Notch in the 5 GHz WLAN band. It matched the wide frequency ranging from 3.1GHz to 5GHz and from 6GHz to 10.6 GHz and its average gain is lower than -18dBi at the stopband. Besides, the patterns and the gains at other bands are similar to the first one antenna of this thesis.