

「校際傑出學術論文授權暨發表會」

論文摘要表

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論文名稱	適用於無線通訊之陣列及平面天線之研究
英文論文名稱	STUDIIES OF ARRAY AND PLANAR ANTENNAS FOR WIRELESS COMMUNICATIONS
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中文摘要

本論文的内容，主要針對應用於無線通訊系統中，陣列天線以及平面天線為研究主題，所採用結構均是以基本輻射元件做為參考天線進而設計出一系列陣列天線，分別適用於 2.4 GHz WLAN/10 GHz X-BAND/Wi-MAX 頻段上。首先我們提出一種具有倒三角形的饋入金屬的天線輻射面，並結合後空氣介質與一種新式的階梯式的接地面整合為平面天線，作為基本元件，進而設計出一系列陣列天線，論文中也探討多輻射元件之間距離對操作頻段的返回損失、輻射場型、天線增益之變化，其次設計為一種具有厚空氣介質直接饋入之平面天線設計做為基本元件，進而設計出一系列陣列天線，也在論文中探討多輻射元件之間的距離對操作頻段的返回損失、輻射場型、天線增益之變化，最後設計一種具有三角饋入之輻射元件直接饋入之平面天線並使用 L 型隔離片達到雙極化操作做為基本元件，進而設計出一系列陣列天線，也與前面章節相同探討多輻射元件之間距離對操作頻段的返回損失、輻射場型、天線增益之變化，達到天線輻射元件間距最佳之調整參數，在上述天線設計過程中，諸如阻抗頻寬、輻射場型、天線增益與輻射元件尺寸等參數調控，本論文均完成詳細之討論。

英文摘要

The study investigates the applications of array antennas and planer antenna in wireless communication system. Structures were used as a single radiating element and then, design a series of array antennas for 2.4 GHz WLAN/10 GHz X-BAND/Wi-MAX band. First at all, this study propose a kind of inverted

triangular radiating antenna feed into the metal, combined with the air after a new kind of media and the access ladder integrated into the ground plane antenna, as the basic components, and then design a series of array antennas, the chapter also discussed the distance of many radiation elements with operating band of Return Loss, radiation patterns, and antenna gain of variation, followed by design as a medium with a thick air of the plane directly fed into the antenna design as the basic components, and then design a series of array antenna , also discussed the paper more than the distance between the radiating element to the operating frequency of the return loss, radiation patterns, antenna gain variation, a kind of triangle final design of the radiating elements fed directly into the plane of the antenna feed and use the L-type isolation of metal as a single element to achieve dual polarization operation, and then design a series of array antennas, also like front chapter discussed the distance of many radiation elements with operating band of Return Loss, radiation patterns, and antenna gain of the changes, achieve the best tuning parameters of the Antenna radiating element.

This study also provided a detailed discussion in the design process of the antenna such as impedance bandwidth, radiation pattern, antenna gain, the shape of radiation element and other parameter adjustments.