新世代寬頻智慧型天線系統應用於行動通訊

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摘 要

本論文中，吾研究了移相陣列天線的理論與綜合研究方法，來設計多波束智慧型天線系統，它是由寬頻共平面觸角領結陣列天線、水平波束成型器及垂直波束成型器所組成，適合用在第四代寬頻智慧型天線系統於行動通訊基地台。此智慧型天線系統可產生多波束在方位角上，來減少同頻干擾。此智慧型天線系統為達到好的涵蓋區域與較佳的增益，而產生窄波束和傾斜波束在垂直面上。為了證明此智慧型天線系統的功能，吾共利用了三種量測系統來量測驗證，第一種為室內頻域量測系統、第二種為室外電子脈衝時域量測系統、第三種為專業智慧型天線系統測試平台。？此智慧型天線系統獲得的量測天線場型與資料結果都與事先所計算、模擬的相吻合;吾實際驗證此智慧型天線系統，吾同時也精心建立與連結可控制的LabVIEW電腦軟體介面來調變運作行動通訊系統，並量測此智慧型天線系統的通訊品質。也就是運用了專業智慧型天線系統測試平台實測於GSM與WCDMA行動通訊中，且實測此智慧型天線系統使用中的EVM值。？此智慧洶按u系統實際的被研發出來，用於GSM與WCDMA行動通訊基地台，且具有寬頻、線性垂直極化、傾斜波束、窄波束場型及八個波束方向掃描功能。

關鍵詞 : 智慧型天線系統 ; 觸角領結陣列天線 ; 多波束天線 ; 多重路徑 ; 巴特勒矩陣 ; 均勻功率分配器 ; 波束切換陣列天線 ; 波束成型器

目錄

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