應用在行動通訊的環狀形式帶通屏蔽體

賴威廷、邱政男

E-mail: 9607736@mail.dyu.edu.tw

摘 要

本篇論文設計一應用於手持無線通訊裝置之帶通屏蔽體(Bandpass Shielding Enclosure, BPSE)，並將頻帶操作於IEEE 802.11b/g 無線區域網路(Wireless Local-Area Network, WLAN)之頻帶2.4 – 2.484 GHz。 本篇論文主要是參考前人所設計的二維頻率選擇表面(Frequency Selective Surface, FSS)，將之進一步設計為三維的屏蔽體，利用迴圈型式的元件設計出三維的屏蔽體，使其能被廣泛的應用於一般常用的手持無線通訊系統，例如：手機、PDA、筆記型電腦等。 本篇設計目標在於設計能屏蔽通訊頻帶以外的電磁雜訊，並且對於通訊頻帶內的穿透率，必須維持在100 %左右，才不至於影響原本通訊器的傳輸功能。對於內部天線阻抗匹配頻寬與輻射場型，也必須盡量保持天線原本的特性，不能有太大的改變。 最後以實作佐證模擬的結果，證實利用迴圈型式的元件所設計出來的BPSE，能達到帶通的效果，且能有效屏蔽頻帶以外的雜訊；對於內部天線阻抗匹配頻寬與輻射場型的影響也不大，達到設計的目標。

關鍵詞 : 頻率選擇面 ; 屏蔽 ; 週期性 ; 電磁干擾 ; 無線通訊 ; 帶通結構 ; 環型迴圈

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