應用於無線通訊裝置之UC-PBG元件帶通屏蔽體設計

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摘 要

本篇論文設計一應用於現代手持式無線通訊裝置之帶通屏蔽體(bandpass shielding enclosure, BPSE)。此一帶通屏蔽體對於特定頻段之無線訊號具有很好的穿透特性，並且對於此通訊頻段外之電磁雜訊具有高度的屏蔽效率。此外，此一帶通屏蔽體對於其內部之天線的阻抗頻寬與天線場型僅有些微的影響。 在此將設計一個使用UC-PBG (uniplanar compact photonic bandgap) 元件之帶通屏蔽體。 UC-PBG 為一二維之週期性陣列結構，此一特殊的結構會產生慢波效應並且在毫米波積體電路與微波領域中有許多應用，例如濾波器、微帶天線或共振腔等。 此帶通屏蔽體將設計於WLAN與IMT-2000之應用頻段，將可屏蔽頻段之外之電磁干擾，並可維持頻段內通訊訊號的品質。因為此帶通屏蔽體具有良好的特性及縮小化的設計，所以非常適合應用在現代手持式無線通訊裝置上，例如PDA與手機。 最後由數值模擬與實作來驗證此帶通屏蔽體之屏蔽特性，由模擬與實作的結果看來，吾人所設計的帶通屏蔽體的確能達成所要的目標。

關鍵詞 : 頻率選擇面 ; 縮小化之共平面光能帶隙 ; 屏蔽 ; 電磁干擾 ; 電磁相容

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