應用於手持式數位視訊廣播之非對稱共面波導饋入型單極天線

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摘 要

本論文的目的在於設計並製造應用於手持式數位廣播通訊（digital video broadcasting-handheld, DVB-H）的單極天線。諸如：筆記型電腦、行動電話、與汽車行動通訊等，均需要小型天線。因為需要小型化，所以相對於波長小很多的尺寸以及寬頻的設計對天線設計極具挑戰性。在本論文中設計了一個以共面波導饋入的印刷電路板形式的單極天線，包含了一個L形狀的天線以及P形狀的接地面。利用不同長度的非對稱接地面，除了單極天線的四分之一波長共振頻段外，可以激發出一個新的輻射頻率（0.75波長）。此外，共面波導饋入的形式，非常適合製作在短小輕便、價格低廉的單晶微波積體電路（monolithic microwave integrated circuits, MMICs）上。藉由模擬軟體先求出輻射場型、反射損耗、或其他天線參數，我們可以初步設計符合此需求的天線。此天線操作頻率為439-937 MHz，反射損耗皆在-6dB以下，此頻段包含了DVB-H之頻段（470-862 MHz）。這個天線的場型在操作頻段內接近全向性。

關鍵詞：數位廣播通訊、印刷電路板形式的單極天線、共面波導

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References
[12] ETSI EN 301 192: “Digital Video Broadcasting (DVB) and DVB specification for broadcasting”.