微波介電材料之量測分析與其於天線上之應用

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摘 要

微波介電材料對高頻元件的特性有相當重大的影響，因此準確的掌握材料特性參數便成為設計上不可忽視的重點。現今已有許多方法可量測介質的電磁參數，但都各有其限制條件及優缺點。其中終端開路同軸探棒具有方便快速及非侵襲性寬頻量測等優點，本文將利用HP Coaxial Probe，配合網路分析儀量測待測介質的反射係數，在經過校正程序後，分別代入分析式中推算介電係數，並配合使用HP 85070D介電量測系統以探討其準確度。本篇研究也將分別比較HP Coaxial Probe 及自製簡易型終端開路同軸探棒的差異，並以低成本之簡易型同軸探棒，配合上推論出之介電係數運算式，探討自行建立之介電係數量測系統，取代HP 85070D系統的可行性。最後再以高介電常數之微波基板，運用其介電特性設計微小化之晶片天線，並量測分析之。

關鍵詞 : 微波基材、介電係數量測、終端開路同軸探棒、晶片天線

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