地面上多導體傳輸線之電磁脈衝耦合效應

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摘 要

本文主要探討電磁脈衝(ELECTROMAGETIC PULSE, EMP)耦合至地面 上傳輸線(OVERHEAD TRANSMISSION LINE)之效應。首先，推導出多導 體傳輸線（MULTICONDUCTOR TRANSMISSION LINE）之理論模型，並依此 理論模型求得其入射耦合之轉換函數（TRANSFER FUNCTION）。依此函 數，本研究將分析雙導體和多導體傳輸線受不同方向之EMP 入射 的情形下，連接不同終端阻抗所產生的耐受效應；另外亦考慮接近 效應(PROXIMITY EFFECT)對此耦合現象之影響。最後，本研究考慮損 耗性參數對耦合電流的影響，分析了傳輸線在真實大地（LOSSY GROUND）上之受EMP 入射的情形，並比較傳輸線阻抗與大地阻抗 對耦合電流的影響，以及大地導電率、傳輸線高度變化對耦合電流 的影響。

關鍵詞 : 電磁脈衝、傳輸線

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