評估超寬頻(UWB)系統工作於選頻性衰落環境中之效能

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摘 要

超寬頻(Ultra-wide bandwidth，UWB)通訊系統之應用，無論是軍事用途或商業用途皆十分廣泛，例如軍事上，同一兵團中之短距離聯繫或軍種間之作戰人員調度，不怕蜂巢式(Cellular) 基地台系統有被摧毀之疑慮；UWB系統通訊也極易於應用於同棟大樓或短距間的商業通訊。本文擬結合高稠密 (High dense) 多重近接傳輸通道常用之數學統計模型出發論述類比式脈衝無線電多重近接(Analog Impulse Radio Multiple Access，AIRMA) 系統與數位式脈衝無線電多重近接 (Digital Impulse Radio Multiple Access，DIRMA) 系統之工作原理，經由說明之推演，加以實務之應用分析。其中，將理論分析，透過實證讓UWB通訊系統的實際效益優點呈現出來，得以讓通訊相關研究與設計人員能了解UWB系統的設計與生產關鍵；除了能讓對通訊技術有興趣的國人在UWB系統的基礎上紮根，當然藉由對本文的理解，對於軍事上短距離通訊設備的採購需求規格，亦得以提出更符合實際需求之制定。除此之外，本論文並結合UWB工作於選頻性(frequency selective)衰落通道環境之中，深入探討與分析其工作效能。

關鍵詞 : 超寬頻、類比式脈衝無線電多重近接、數位式脈衝無線電多重近接

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