超寬頻系統(UWB)鍍於展頻通訊系統中之開發研究

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摘 要

本論文探討超寬頻(ultra-wideband, UWB)鍍於展頻(spread spectrum) 通訊系統中之開發與研究，其中並假設經由通道為中上（Nakagami-m）衰落通道，並採用耙式接收機（Rake receive）於接收端，使用最大比例合成技術（maximal ratio combine, MRC）作為接收端之位元錯誤率的效能分析。一般的通訊系統，除了相加性的白色高斯雜訊（additive white Gaussian noise, AWGN），亦需考慮到多重近接干擾（multiple access interference, MAI）和偏頻干擾（partial band interference, PBI），並且考慮通道的多重路徑於都卜勒效應(Doppler effect)下所造成的相關性環境，研究分析UWB系統之效能。經由本論文的研究中，透過電腦數值分析中的發現，路徑和路徑之間的相關係數的變化確實影響著UWB系統鍍於展頻技術的系統效能。因此在系統架構的設計上，針對此一因素必須加以考量。

關鍵詞 : 中上衰落通道 ; 最大比例合成 ; 多重存取干擾 ; 偏頻干擾 ; 相關係數

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