論MC-CDMA系統工作於Weibull衰落中之通道相關特性

陳茂清、陳雍宗

E-mail: 9601120@mail.dyu.edu.tw

摘 要

本篇論文探討多載波展頻(multi-carrier spread spectrum)技術 中， 多載波晝碼多重近接(multi-carrier coded-division multiple-access， MC-CDMA) 系統操作於相關韋布分布 (correlated-Weibull distribution)通道環境中工作的優異性。其中吾設計通訊通道係處於小尺度衰落(small scale fading)的統計模式中，而 且通路的環境假設有多重路徑(multipath)的現象產生，在接收端 上，本文利用最大比例合成(maximal ratio combining, MRC)器接收 多重分支之路徑分量；透過隨機程序求解動差生成函數(moment generating function, MGF) 的方法， 得到MRC 輸出的訊雜比 (signal-to-noise ratio, SNR)值；取其反拉氏(inverse Laplace transform) 轉換得SNR 的機率密度函數(probability density function, pdf)；最 後，為得到系統的平均位元錯誤率(average bit error rate, BER),使用 等效於誤差函數(error-function)的公式，並將通道間的多重路徑強 度剖面參數(multipath intensity profile)設定成指數變化，藉以分析探 討MC-CDMA 系統於行動通訊環境下的行為。

關鍵詞 : MC-CDMA 系統，小尺度衰落，最大比例合成(MRC)，動 差生成函數(MGF)，訊雜比(SNR)

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