衰落波道中劃碼多重進接系統之工作特性研究

張元輝、鍾翼能

E-mail: 9125194@mail.dyu.edu.tw

摘 要

在無線通訊系統中，劃碼多重進接(CODE-DIVISION MULTIPLE-ACCESS，CDMA)系統，其已經被採用為 第三代行動通訊的核心技術，其在具有衰落的波道中傳輸的系統效能是值得探討的。基於此觀點，本論 文乃在衰落波道環境下，深入探討劃碼多重進接系統接收方式之系統效能。其中並推導了一則新的公式 ，最後經由數值分析結果發現，衰落波道所擁有的封包確實具有左右系統性能之能力，本論文特別針對 兩種特殊條件之相依特性進行各種系統性能分析評估，其所必要之數值計算與理論推導包括：各種外來 之干擾(INTERFERENCE)之變異數(VARIANCE)計算； 耙形接收機(RAKE RECEIVER)輸出端之訊雜比(SIGNA -L-TO-NOISE RATIO, SNR)的機率密度函數(PROBABILITY DENSITY FUNCTION, PDF)推導等。本論文結果 已經推演到一新的平均位元錯誤率(BIT ERROR PROBABILITY, BER) 之公式，並以數值分析方法討論系 統處理增益(PROCESSING GAIN)、分支數目(DIVERSITY NUMBER) 等參數對系統接收端的影響結果。

關鍵詞 : 衰落波道 ; 劃碼多重進接系統 ; 統計分布 ; 耙形接收機。

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