非同調M-ary頻率位移鍵控結合選擇合成分集接收系統於Weibull通道之效能分析研究

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摘 要

本論文之研究在於利用數位調變(Digital Modulation)方式和分集(Diversity)合成(Combining)接收系統來改善接收訊號的位元錯誤率(Bit Error Rate , BER)，其中，並假設數位調變系統係工作於存在著衰落(Fading)現象的通道中。　文中針對幾種著名的通道模型作介紹，最後之所以採用韋布分佈(Weibull Distribution)作為本論文研究過程中所架構的衰落通道模型，主要是因為韋布分佈具有足以掌控衰落通道現象的變化特性之參數。另外，也針對幾種常用的分集合成技術作分析，利用通道準位跨越率(Level-Crossing Rate , LCR)和平均衰落區間(Average Fade Duration , AFD)決定出選擇合成(Selection Combining , SC)作為本研究題目的分集合成接收系統；SC是分集合成技術中最簡單而且可靠的一種。最後配合SC合成，選用了非同調M-ary頻率位移鍵控(Non-Coherent M-ary Frequency Shift Keying , NC-MFSK)與差分相位位移鍵控(Differential Quaternary Phase Shift Keying , DQPSK)兩種數位調變方式，並作各種實際傳輸中所可能出現的假設，利用改變不同參數致求得系統架構下之位元錯誤率。

關鍵詞 : 韋布衰落通道、準位跨越率(LCR)、平均衰落區間(AFD)、NC-MFSK、DQPSK

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