

# On the Impact of Carrier Frequency Offsets in MC-DS-CDMA System over Weibull Fading

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## ABSTRACT

The system performance of error probability for an MC-DS-CDMA (multi-carrier direct-sequence coded-division multiple-access) system with adopting the scenario of Weibull fading channel are evaluated and proposed in this paper. Based on the multivariate MGF (moment generating function) of Weibull statistics and an alternative expression of Q-function, an approximate simple BER (bit error rate) expression is derived for an MC-DS-CDMA systems combining with MRC (maximal ratio combining) diversity. The brain new idea applying of Weibull fading model for the BER performance analysis of MC-DS-CDMA system obtained is not only with the assumption both of single-user and multi-user cases included, but the phenomena of PBI (partial band interference) is also involved in this research. It is worthy to note that the results from this report, no matter what are the scenarios of the channel model assumed or the user number considered the PBI is definitely the most important factor which deeply dominates the system performance of an MC-DS-CDMA system. The reliability of the scenarios proposed in this investigation can be verified and would be explicit accordance with the previously researched results. Thus we can claim that the aim on the performance analysis for MC-DS-CDMA system operating over Weibull fading is arrived at completely.

Keywords : MC-DS-CDMA system, MRC, PBI (partial band interference), Weibull fading

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