

ABSTRACT

OFDMA (Orthogonal Frequency Division Multiple Access) has applied in broadband wireless access technologies because of its high spectral-efficiency This algorithm is based on the multiuser Waterfilling theorem and determines the subcarrier allocation for a multiple access OFDM system. This approach maximizes the total bitrate under the constraints of user-individual power budgets.

In this final project, simulation and analysis is made to figure out the power allocation on OFDMA. In this scheme, each block of subcarriers assumed divided into some sub-blocks, then every sub-block is given power allocation bitrate under the constraints of power budgets.

Results of simulation shows with Waterfilling algorithm that each of subcarriers has same bitrate and the channel capacity is fairness with $BER=10^{-3}$ with BPSK modulation. The value of fairness with Waterfilling is zero, without Waterfilling is Waterfilling 0.14-0.207 and the last *flat adding* 0.09-0.18. The best throughput is Waterfilling with 4.3058×10^7 bps, then flat adding with 1.7573×10^7 bps, the last without Waterfilling is 1.6450×10^7 bps.

Keyword :

OFDMA, subcarrier, channel gain, power allocation, Waterfilling, fairness