ABSTRACT

Application of wireless communications system was growing up. It cause needed a wide range frequency. But the range frequency are limited resource and was not updated. Therefore needed a system which had high efficiency. So the capacity was increase. MIMO system is a solution to going up this requirement.

Optimum combining is one of method to improve SNR output. It improvement reached by multiplied the received signal with weight value at combiner. The weight value was got from adaptive array with applying LMS's adaptive algorithm. STBC encoder used to increase the bit rate without increase power and bandwidth. Therefore, This final assignment investigated performance and quality of MIMO STBC system with optimum combining. Where user and noise was done on AWGN channel and multipath fading Rayleigh .

From the simulation result, performance of MIMO optimum combining in frequency flat fading was increase around 1 dB , increase 10 % of throughput with user speed at 3 km/hour. But in frequency selective fading, performance of MIMO optimum combining same with MIMO.

Keyword : Optimum Combining, MIMO, Rayleigh Fading, Outage probability, Throughput