ABSTRACT

Spatial Multiplexing is one of MIMO (multiple input multiple output) system application directed to increase channel capacity by multiplying transmitted information signals.However, signal quality must also be considered, which can be done by using a reliable receiver in signal detection.

In this final project, the performance of the detection with spatial multiplexing is evaluated. With the Combination of Sphere Decoding Algorithm and Zero Forcing can correct performance of the receive signals.This algorithm has the complexity lower than Maximum Likelihood but has performance approach ideal. The algorithm is especially suited for systems with a large number of transmit antennas and allows efficient implementation in hardware.

The simulation results show the spatial multiplexing MIMO systems using sphere decoding and with the combination of sphere decoding algorithm and zero forcing having the same performance.But with the combination of sphere decoding algorithm and zero forcing symbol detection procedure is simpler than the sphere decoding.

Keyword : MIMO, Spatial Multiplexing, Sphere Decoding , BER