

## ABSTRACT

Wireless propagation channel have a lot of scattering caused multipath fading signal effect, which make wireless communication performances descend. Multi-input multi-output (MIMO) is one of the techniques improving the performances caused by multipath fading, using multi antenna at side of transmitter (Tx) and at side of receiver (Rx).

Radio channel modeling is one of the most difficult parts of mobile radio communication system design, and typically done in a statistical fashion, based on measurements. This project models and simulates mobile radio channel of MIMO which consist of propagation channel and antenna arrays both at transmitter and at receiver. The research will be done in ITU Vehicular A, ITU Pedestrian B and Pedestrian A. Analysis of simulation results cover spatial correlation coefficient and impulse response to characteristics of radio channel and topology of MIMO systems.

The simulation showed the value of coefficient lower for power azimuth spectrum (PAS) Uniform and will be high valuable for PAS Truncated Laplacian. Spatial correlation coefficient will reduce when minimizing one of the parameter of mean angle-of-arrival (AoA) or angle-of-departure (AoD), azimuth spread (AS) and distance between antenna elements. Channel impulse responses will be change rapidly if Doppler shift increase. The capacity of 4x2 MIMO system is bigger than 2x2 MIMO system because the eigenvalues is bigger.

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