GEOMETRICALLY−BASED SPACE−TIME DETERMINISTIC MULTIPATH FADING CHANNEL MODEL WITH APPLICATION TO SPATIAL CORRELATION VERIFICATION OF MULTI−ANTENNA SYSTEMS (MonPmPO1)

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Abstract :

This paper presents a deterministic space−time multipath Rayleigh fading channel model to study space−time correlation of the received signal waveforms to multi−antenna array receiver system. It can be considered as a modification of Lee's model, which is based on vector sum of fading waveforms, incorporating azimuth spread, time delay along the array, scatterers' location geometry and number of scatterers' considerations. Recent field measurements show a Laplacian distribution of power azimuth, suggesting that there are more scatterers or more scatterers' energy closer to the true direction of the mobile transmitter. Therefore number and location of scatterers at the vicinity of the mobile as well as power of contributed signal components should be revisited in spatio−temporally correlated fading models, which is our motivation. Simulation results show fair agreement with recent field measurements in terms of spatial correlation.

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