# Radiative Transfer Theory vs. Monte-Carlo Simulations: Propagation Loss Predictions for Mobile-to-Mobile Communications in a Trunk Dominated Park Environment

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**Abstract:**

Multiple scattering effects in a two-dimensional forest of tree trunks whose radii are small or large with respect to the wavelength is studied. The radiative transport equation is used to solve for the specific intensity in the forest medium. Using the circular symmetry of the trunk and assuming that the transmitter and the receiver are in the same transverse plane, the radiative transport equation is solved numerically by the eigenvalue technique. The solution is used to compute both the coherent and the incoherent attenuation constants in the trunk-dominated forest. In the low frequency limit the results are compared with the values obtained from a Monte-Carlo simulation of an ensemble of infinite length vertical cylinders.