

Propagation Model Development Considerations for Short-Ranges and Low-Antenna Height Applications

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Abstract: *This paper describes an analysis effort for determining the technical considerations for developing radio-wave propagation models to assist electromagnetic compatibility analysis and spectrum management efforts of mobile wireless devices. After performing an exhaustive review and evaluation of currently available radio-wave propagation models, ITS determined that none of the currently available radio-wave propagation models were suitable for performing radio-wave propagation loss computations to facilitate electromagnetic compatibility analyses of mobile wireless devices. ITS initiated an analysis effort to determine how to develop alternative models that would be valid in this parameter range. This analysis effort involved investigating various propagation loss prediction methods that would be valid for close separation distances(one meter to two kilometers), low antenna heights(one to three meters), and frequencies of 150 -3000 MHz. This paper describes the preliminary analysis and investigation that would later be used to develop the radio-wave propagation models that would meet the requirements of the short range mobile-to-mobile (MTOM) propagation model. It was determined that a combination of the complex two-ray method and a method that computes mutual coupling would meet the requirement.*