Directional Spreads of Dense Multipath Components: a Ray-Tracing Approach

Author(s) - Institution(s):
Francesco Mani, UCL
François Quitin, ULB
Claude Oestges, UCL

Corresponding author email: francesco.mani@uclouvain.be

Corresponding WG group: WG1

Abstract:

This paper investigates the prediction capabilities of an advanced Ray-Tracing tool in terms of the angular spreads and spectra of the directional propagation channel. In particular, it highlights the angular behavior of dense multipaths, which may represent a non-negligible part of the received power, by comparing Ray-Tracing simulations with experimental data (office and laboratory environments). Results show that an advanced Ray-Tracing approach including diffuse scattering is able to reproduce the dense multipath angular spreads, with errors around 4 to 20 degrees, and that scattering from ceiling is significant to predict the elevation spread. The assumption that diffuse scattering is clustered and strongly related to the most significant specular components is also successfully validated.