

Ray Tracing Simulations of Indoor Channel Spatial Correlation for Physical Layer Security

Author(s) - Institution(s):

Francesco Mani, TPTech
Enrico Vitucci, CNIT/BO
Alain Sibille, TPTech
Vittorio degli Esposti, CNIT/BO

Corresponding author email: francesco.mani@telecom-paristech.fr

Corresponding WG group: TWGI, WG1

Abstract:

A 3D Ray-Tracing software, including diffuse scattering, is employed to simulate spatial correlations in an indoor environment at the frequency of 5GHz. Measurements, performed with a Vector Network Analyzer, are used to validate simulated results. The goal is to establish the accuracy of ray-based simulations to model a Physical Layer Security scenario, where two legitimate users try to take advantage of the intrinsic properties of the wireless channel to generate a shared secret key inaccessible to an eavesdropper.