

Using tuned diffuse scattering parameters in ray tracing channel modeling

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Abstract:

During the last decade several works have shown that the diffuse scattering propagation mechanism is significant when an accurate channel analysis is desired at high frequencies. This way, different sub-models based on the Effective Roughness model have been proposed. The current radio wave prediction tools based on these diffuse scattering sub-models consider constant model parameters values for all elements found in the analyzed environment. In this work appropriate model parameters values are assigned to the different materials of an indoor environment in a ray tracing tool. This tool includes the traditional propagation mechanisms and a single bounce diffuse scattering model. As the results show, the selection of appropriate model parameters, which represent the importance of diffuse scattering in each element, increases the accuracy of the simulation tool when the Power Delay Profile (PDP) is evaluated at 60 GHz.