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Abstract: In this paper a realistic directional channel model that is an extension of the COST 273 channel model is presented. The model uses a cluster of scatterers and visibility region generation based strategy with increased realism, due to the introduction of terrain and clutter information. New approaches for path-loss prediction and line of sight modeling are considered, affecting the cluster path gain model implementation. The new model was implemented using terrain, clutter, street and user mobility information for the city of Lisbon, Portugal. Some of the model's outputs are presented, mainly path loss and small/large-scale fading statistics.

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