On the Use of OpenStreetMap Data for V2X Channel Modeling in Urban Scenarios

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Abstract:

There is a need to characterize the radio channel for vehicular communication systems including the derivation of adequate channel models for specific traffic situations. Deterministic channel modeling approaches like ray tracing may become of greater interest since they take the individual characteristics of the environment into account and help reveal the most relevant radio propagation phenomena. However, a detailed and accurate database of objects like buildings influencing radio propagation is required. The aim of this paper is to encourage the propagation research community to consider public-domain OpenStreetMap (OSM) data for the purpose of deterministic channel modelling focusing on urban vehicular environments. We present a guideline on how to make use of OSM data and answer the question whether the building data can provide a satisfying accuracy required for adequate channel modeling.