

Physical Layer Performance Comparison of LTE and IEEE 802.11p for Vehicular Communication in an Urban NLOS Scenario

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Abstract:

In this paper, a physical (PHY) layer performance comparison for 3GPP Long Term Evolution (LTE) and IEEE 802.11p in a realistic urban street intersection scenario is presented. For this approach standard compliant link level simulation tools in combination with ray-optical channel modeling is deployed. The results are analyzed with respect to an intersection collision warning application where a suitable performance metric is used. It is shown for the investigated scenario that LTE might outperform IEEE 802.11p in the absence of the line of sight (LOS) path for the direct Vehicle-to-Vehicle (V2V) communication.