Propagation Measurements in 5.8GHz and Pathloss Study for CEN-DSRC

Abstract:
Dedicated Short-Range Communications (DSRC) technology in the 5.8 GHz band is a key enabler to support a safer and more efficient vehicular transportation in the future. The chosen 5.8GHz frequency band is therefore of great interest for us to study the propagation of signals under various environments. In this paper we investigate and record the propagation affects of 5.8GHz radio signals in an urban and sub-urban like environments with experiments conducted in the city of Melbourne for an infrastructure to vehicle (I2V) use case. The experiments were conducted for a T-R separation from 20m to 150m with line of sight conditions for the three chosen environments with and without the vehicle for comparisons as described in the paper. Based on the measurements we estimate the pathloss exponent and the shadowing standard deviation for the chosen scenarios. More interestingly our results also show a constant pathloss for the measurements with the car when compared to the measurements without the car for different scenario.

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