End to End Performance Analysis of Relay Cooperative Communication Based on Parked Cars

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Abstract—**Parking lots (PLs) are usually full with cars. If these cars are formed into a self-organizing vehicular network, they can be new kind of road side units (RSUs) in urban area to provide communication data forwarding between mobile terminals nearby and a base station. However cars in PLs can leave at any time, which is neglected in the existing studies. In this study, we investigate relay cooperative communication based on parked cars in PLs. Taking the impact of the car's leaving behavior into consideration, we derive the expressions of outage probability in a two-hop cooperative communication and its link capacity. Finally, the numerical results show that the impact of a car's arriving time is greater than the impact of its parking duration on outage probability.**

Keyword—**Parking Lots, Leaving Behavior, Outage Probability, Cooperative Communication, Vehicular Networks**

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