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Experimental Measurement for Vehicular Communication Evaluation Using Obu Arada System

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Abstract : The equipment of vehicles with wireless communication capabilities is expected to be the key to the evolution to next generation intelligent transportation systems (ITS). The IEEE community has been continuously working on the development of an efficient vehicular communication protocol for the enhancement of Wireless Access in Vehicular Environment (WAVE). Vehicular communication systems, called V2X, support vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) communications. The efficiency of such communication systems depends on several factors, among which the surrounding environment and mobility are prominent. Accordingly, this study focuses on the evaluation of the real performance of vehicular communication with special focus on the effects of the real environment and mobility on V2X communication. It starts by identifying the real maximum range that such communication can support and then evaluates V2I and V2V performances. The Arada LocoMate OBU transmission system was used to test and evaluate the impact of the transmission range in V2X communication. The evaluation of V2I and V2V communication takes the real effects of low and high mobility on transmission into account.

Keywords : IEEE 802.11p, V2I, V2X, mobility, PLR, Arada LocoMate OBU, maximum range
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