

Simulation of the Received Power for V2V and V2I Communication Within Radius of 500m

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Cars provided people with comfortable transportation, but caused much traffic accident. According to the statistics, it happened by driver's carelessness, for example, negligence of the front view, drowsy driving and lack of safety distance. This paper perform V2V(vehicle to vehicle) and V2I(vehicle to Infra) using WAVE(Wireless Access Vehicular Environment), so result which quick response of drive and improvement of recognition range is expected.

The modeling of communication is constructed by software of Ramcom's wireless insite. In addition, the received power is simulated about 500m in the front and the rear of the vehicle. In the process of simulation, Tx antenna of the front vehicle is a rectangular patch, but Tx antenna of rear is a 1x2 array patch due to the cable loss. Tx the front and rear is that 6dBi and 10dBi of pattern gain and 15dBm and 3dBm of input power. Rx pattern is isotropic, the size of horizontal and vertical are 1,000x30 m and 1,000x25 m, respectively. The spacing of sweep is 1m.

Figure1 shows the result of the received power. For the optimized WAVE communication, it should require the received power of -98 dBm. So, figure1 is described in range of the received power of -98 dBm within a vehicle radius of 500 m. As a result, it can be seen that it receives -98 dBm stably within the front and the rear of 500m radius. In addition, for accurate vehicle modeling, radiation patterns were simulated for the distance and the slope between the antenna and the glass, but because of one page over, it will be presented in conference.

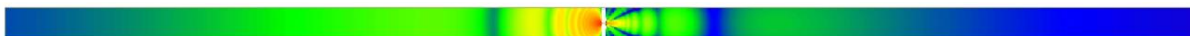


Figure 1. The result of the attenuation receive.