

Document Information

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4.9 Wrong Way Driving (WWD)

4.9.1 General description

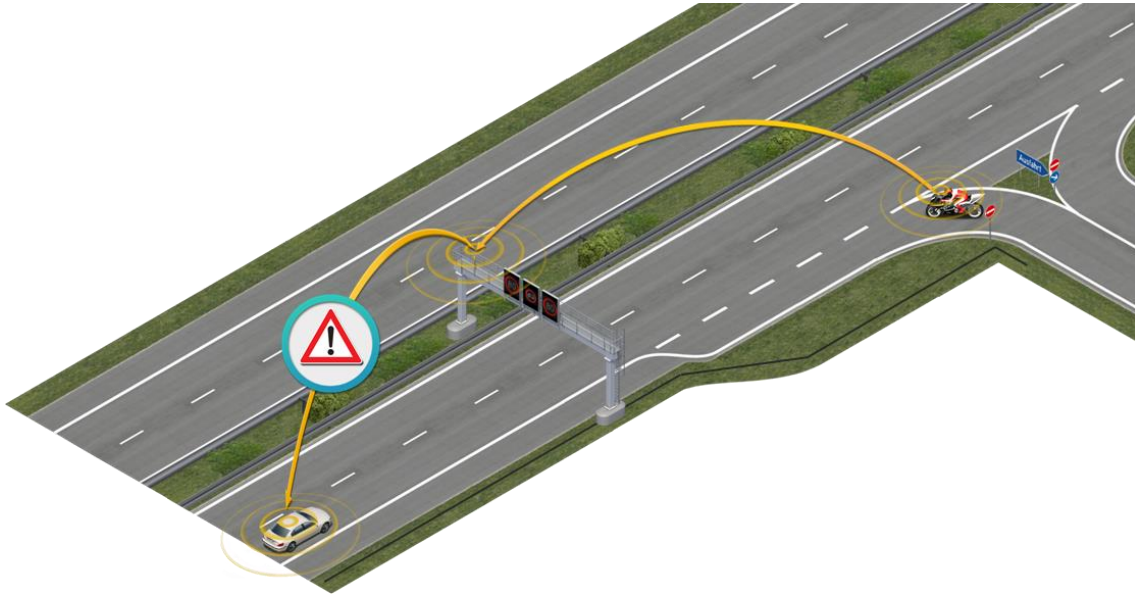
The Wrong Way Driving (WWD) application sends the “Wrong Way Driving” message to surroundings if the ego vehicle is moving against the regular traffic flow is detected by capabilities such as a camera equipped on the vehicle. On the other hand, when the ego vehicle receives a WWD message from infrastructures such as Road Side Unit (RSU) and other vehicles, this application warns the rider that there is a vehicle driving in the wrong direction on the route of the ego vehicle.

4.9.2 Use case description

This application has two use cases. The first one covers the situation when ego vehicle is driving in the wrong direction and involves broadcasting WWD message (DENM) to the surrounding of the ego vehicle. The second one covers the situation when ego vehicle in the regular traffic flow shall be warned about a vehicle driving in the wrong way by WWD message received from other vehicles or infrastructure such as RSU. In the following sections, the former use-case is described as PTW transmit DENM, and the latter as PTW receive DENM.

4.9.2.1 Scenario description: PTW transmit DENM

When the ego vehicle is entering from the wrong entrance on a motorway and trying to move forward in the wrong direction against the regular traffic flow, this application shall trigger the WWD event, using the position and traveling direction of the ego vehicle and map data. Then it shall compose a WWD message as a DENM including the ego vehicle data and broadcast it to surroundings for the potential danger of the collision with the ego vehicle. At the same time, it shall warn the rider that the ego vehicle is in the WWD situation.

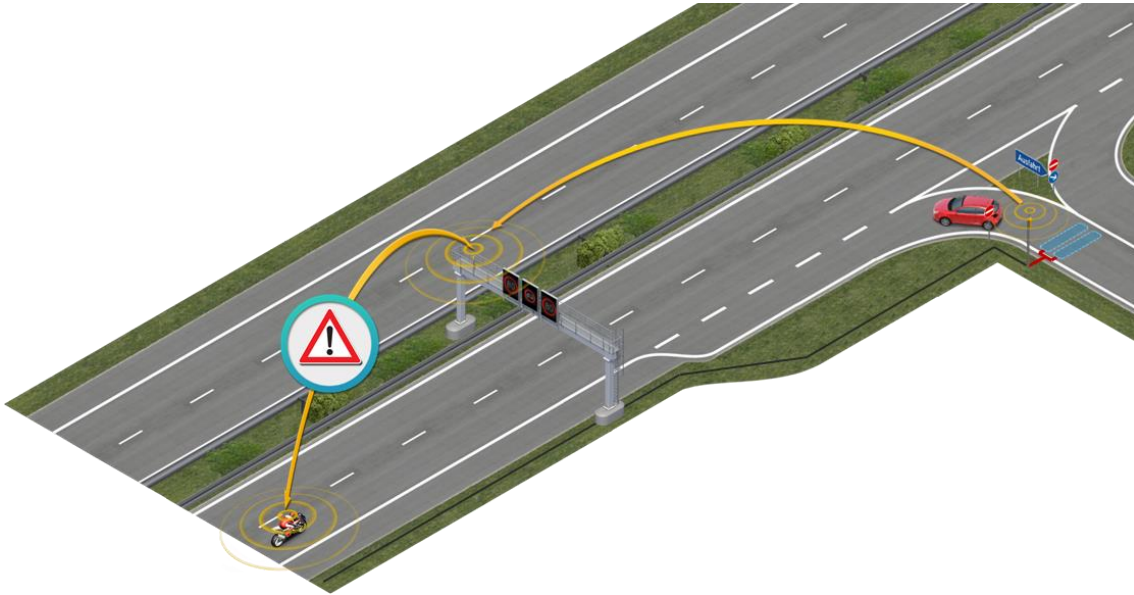


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Figure 1: Use case of WWD (PTW transmit DENM)

4.9.2.2 Scenario description: PTW receive DENM

Infrastructures and other vehicles will transmit the WWD message to surrounding when detecting that a vehicle entered the wrong entrance or moves forward in the wrong direction against the regular traffic flow. When the ego vehicle receives the above message, this application shall calculate the possibility of a collision with the oncoming vehicle and the ego vehicle. Then it shall inform the ego vehicle rider of the presence of the vehicle driving in the wrong way if the probability of the collision with the oncoming vehicle is high.



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Figure 2: Use case of WWD (PTW receive DENM)

Abbreviations

Please refer to the abbreviations in Preamble document.