



Reward 2011

Mazda Rear Vehicle Monitoring system (RVM)



Mazda Rear Vehicle Monitoring system (RVM) is a technology designed to assist a driver to avoid dangerous situations or collisions with other road users during a lane change. Two radar sensors, one on either side of the car, are mounted in the rear bumper to measure the distance and relative speed of surrounding vehicles.

At speeds above 60km/h, the system will indicate to the driver if there is a vehicle approaching quickly in a zone up to 50m behind the car, or driving in the so-called 'blind-spot'. Mazda RVM will continuously monitor rearward traffic for possible critical situations when changing lanes.

An indicator light in the door mirror will warn the driver either if a vehicle might be invisible in the blind spot on that side or if a vehicle will approach this area within 5 seconds. When the driver uses a direction indicator to signal a lane change in such a critical situation, the warning indicator starts to flash and is accompanied by an audible signal.

The system will monitor both sides of the vehicle, so that it will support the driver when he intends to overtake as well as when he is being overtaken, to ensure that the car can be safely returned to its lane. The system works in almost all weather conditions and detects all types of vehicles, including motorcycles.

What is the safety benefit?

Mazda RVM is a technology developed to help the driver avoid accidents due to a lane change. To quantify the safety benefit, Mazda identified that nearly 5% of all accidents are between vehicles driving in the same direction, of which nearly 80% are due to a lane change. Taking into account the system specifications of the Mazda RVM, the system has the potential to help avoid more than half of these accidents. Owing to the nature of this type of accident, this technology provides a greater safety

benefit at high speeds typical of rural roads and highways, and helps particularly to reduce severe and fatal accidents.

How has the system been assessed?

Mazda has tested the system extensively during its development. A wide variety of tests were done on test tracks to establish the correct response of the system in different traffic situations. In addition, extensive road testing was done by professional drivers in different traffic and weather conditions on different continents. A survey has shown a high level of satisfaction by users, a critical parameter in ensuring continued use.

For the Euro NCAP Advanced Award Mazda have had the system tested under the supervision of one of Euro NCAP's independent laboratories in normal driving conditions. A large number of real-life scenarios were verified to confirm the system performance.

What are the limitations?

Mazda RVM does not switch on by default at the start of each journey. The driver can manually turn the system on and off using a switch on the dashboard. The last known status of the system is memorized.

In low radius bends (< 150m), Mazda RVM may give false warnings, mistakenly identifying vehicles as being in an adjacent lane when they are in fact following in the same lane. However, such tight bends are unusual on the types of roads where the system is primarily intended to operate.

Similarly, if lanes are unusually narrow (in road works, for example), the system may warn of vehicles in a non-adjacent lane. The system depends on clear detection by the two radar sensors. This detection might be impaired in adverse weather conditions (very heavy rain or snow etc). A mounted trailer or damage to the rear bumper area might interfere with the radar's operation. In these cases the Mazda RVM will indicate that the system is not working properly.



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