

FACT SHEET

AUTOMATIC EMERGENCY BRAKING WITH PEDESTRIAN DETECTION



Background

On average, a pedestrian is killed every 88 minutes in traffic crashes in the United States, totaling almost 6,000 people per year. The first pedestrian detection system came to market in 2011 using both radar and image sensors to detect possible collisions with pedestrians as well as with other vehicles. While these systems are intended to help mitigate a collision, they are not intended to replace an engaged driver. Pedestrian detection systems are designed for specific scenarios, but the technology may not always perform as intended or in real-world scenarios such as a child darting from between two parked cars or detecting a pedestrian at night.

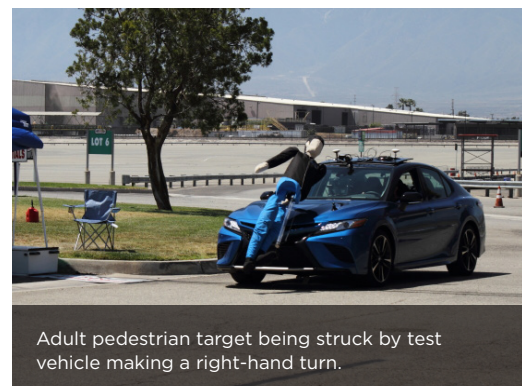
AAA conducted primary research to evaluate the performance of pedestrian detection systems in common scenarios where drivers may encounter pedestrians. Testing was performed on a closed-course using industry standard test equipment to simulate dynamic interactions between vehicles and pedestrians.

Key Findings

1. Pedestrian detection systems were significantly challenged in the following simulated test scenarios:
 - a. When encountering a child at 20 mph, a collision occurred 89% of the time.
 - i. At 30 mph, none of the test vehicles avoided a collision with the pedestrian.
 - b. When encountering an adult immediately after a right curve, none of the test vehicles avoided a collision with the pedestrian or mitigated the impact speed.

To understand the capabilities of pedestrian detection systems, AAA pursued three lines of inquiry in simulated scenarios:

1. How do pedestrian detection systems perform when encountering an adult crossing the road with a vehicle approaching at 20 mph and 30 mph?
2. How do pedestrian detection systems perform in the following scenarios:
 - a. Child darting into traffic from between two parked cars with a vehicle approaching at 20 mph and 30 mph
 - b. Vehicle turning right onto an adjacent road with an adult crossing simultaneously
 - c. Two adults alongside the road with a vehicle approaching at 20 mph and 30 mph
3. How do pedestrian detection systems perform when encountering an adult crossing the road at night with a vehicle approaching at 25 mph?



Adult pedestrian target being struck by test vehicle making a right-hand turn.

