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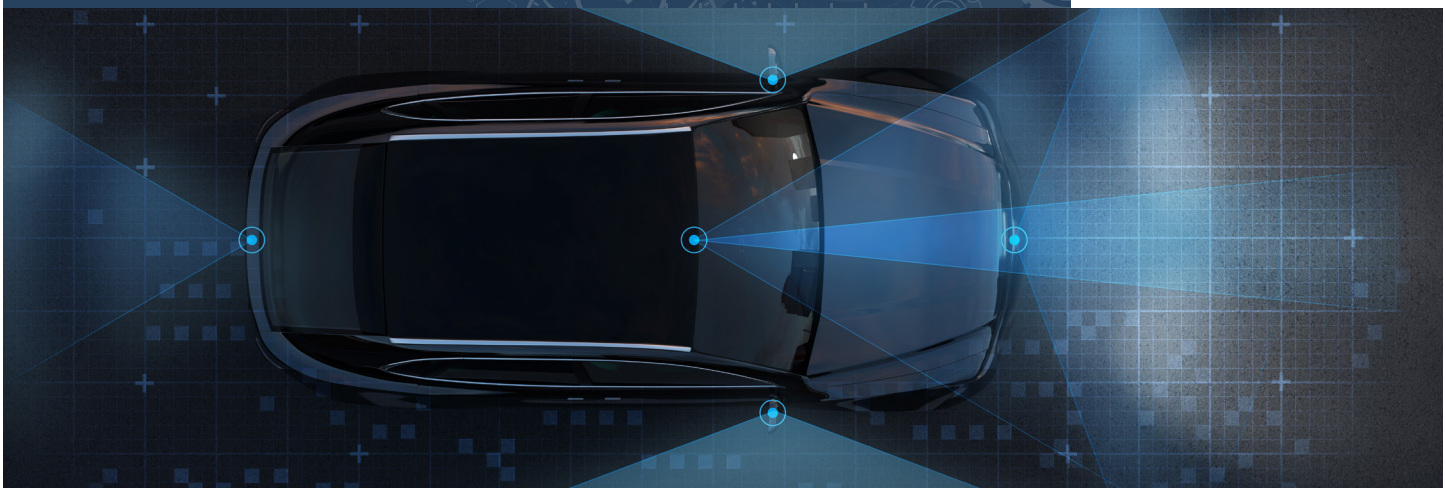
FACT SHEET

EVALUATING ACTIVE DRIVING ASSISTANCE SYSTEMS



Background

Advancements in automotive technology are moving at a rapid pace as automakers, tech companies and others race towards a more automated driving experience. While the road to fully self-driving cars is long, many new vehicles sold today are equipped with features that can assist with parts of the driving task such as adaptive cruise control and lane keeping assistance. When these two systems are combined to work as one, this is known as active driving assistance (ADA), which is considered to be the highest level of automated vehicle technology available to consumers today.

The purpose of this research is to provide an evaluation of publicly available ADA systems in a variety of scenarios that drivers may encounter. Testing was conducted on a closed-course and public access roadways to assess performance of the ADA system.

To understand the capabilities of active driving assistance (ADA) systems in common driving conditions, AAA pursued the following line of inquiry:

How do vehicles equipped with ADA systems perform while driving on roadways, both closed-course and in the real world?

Key Findings

During closed-course testing, each ADA system generally performed according to expectations.

- On fresh pavement (laid within the last six months) with well-defined lane markers, each evaluated system was able to maintain consistent lane positioning.
- When encountering a simulated disabled vehicle on the side of the road, in aggregate, a collision occurred 66% of the time.
  - For collisions that occurred, the average impact and mitigation speed was 25 mph and 5 mph respectively.
- In a simulated stop-and-go scenario, each test vehicle successfully stopped, making no contact with the lead vehicle during any test run.

Over the course of 4,000 miles of real-world driving, ADA systems experienced a number of issues (also known as “events”).

- Issues with lane-keeping accounted for 73% of all researchers’ noted events.
- On average, researchers recorded a noteworthy disruption approximately every eight miles, totaling 521 events.

Alphabet Soup: ADA versus ADAS?

Vehicles today are equipped with a variety of safety technology with an even larger variety of names, often causing confusion for the consumer. These systems are classified as Advanced Driver Assistance Systems (ADAS) and include things like blind spot warning, adaptive cruise control and automatic emergency braking. Active driving assistance (ADA), the technology tested in this AAA study, is also considered an ADAS, however it differs from the others in a distinct way. ADA systems combine braking, accelerating and steering, which means bringing together functionality provided by adaptive cruise control and lane keeping assistance. This technology actively assists the driver versus other ADAS that only engages when needed. ADA is also the only ADAS classified as Level 2 automation by the Society of Automotive Engineers as illustrated in the chart below.

Levels of Driving Automation*

CURRENTLY AVAILABLE FOR PUBLIC PURCHASE (DRIVER SUPPORT FEATURES):	
Level 0	No sustained automation; driver is required to maintain full control of the vehicle at all times. *Conventional cruise control, anti-lock brakes, automatic emergency braking*
Level 1	Some driver assistance available; driver must remain engaged and perform driving tasks. *Lane keeping assistance, adaptive cruise control, blind spot warning*
Level 2	Partial driving automation through one system that controls steering to maintain lane position and forward motion to maintain either a set speed or appropriate following distance. Driver must remain engaged and perform driving tasks. *Active driving assistance (adaptive cruise control and lane keeping assistance working as one)*
NOT YET AVAILABLE FOR PUBLIC PURCHASE (AUTOMATED DRIVING FEATURES):	
Level 3	Vehicle is capable of performing the entire driving task within **specific** environments; driver is expected to assume full control when prompted by the vehicle.
Level 4	Vehicle performs the entire driving task within **specific** environments; driver is **not** expected to assume any control of the vehicle at any time.
Level 5	Vehicle performs the entire driving task in **any** environment; driver is **not** expected to assume any control of the vehicle at any time.

*As defined by SAE International

Methodology

AAA conducted closed-course testing and naturalistic driving in partnership with the Automobile Club of Southern California's Automotive Research Center and AAA Northern California, Nevada and Utah's GoMentum Proving Grounds. Using a predefined set of criteria, AAA selected the following vehicles for testing: 2019 BMW X7 with "Active Driving Assistant Professional", 2019 Cadillac CT6 with "Super Cruise™", 2019 Ford Edge with "Ford Co-Pilot360™", 2020 Kia Telluride with "Highway Driving Assist" and 2020 Subaru Outback with "EyeSight®". The 2019 Cadillac CT6 and the 2019 Ford Edge were evaluated only within naturalistic environments as the system would not engage in the closed course setting. For specific methodology regarding testing equipment, closed-course test scenarios and naturalistic routes, please refer to the full report here.