

VEHICLE OWNERS' EXPERIENCES WITH AND REACTIONS TO ADVANCED DRIVER ASSISTANCE SYSTEMS

INTRODUCTION

Many new vehicles available for consumers to purchase today offer advanced driver assistance systems (ADAS) designed to improve the convenience and safety of driving by warning the driver that a crash is imminent or by temporarily automating certain aspects of vehicle control such as acceleration, braking or steering. As these technologies become more available to motorists, they have the potential to reduce rates of crashes, injuries and deaths on our roadways. However, that potential will not be realized fully unless consumers accept these technologies, understand how to use them, use them as intended, and avoid misusing or becoming over-reliant on them.

The purpose of this AAA Foundation for Traffic Safety study was to examine experiences with, opinions about and understanding of specific ADAS technologies by surveying the registered owners of selected model year 2016 and 2017 vehicles equipped with technologies of interest, which included forward collision warning (FCW), automatic emergency braking (AEB), lane departure warning (LDW), lane keeping assist (LKA), blind spot monitoring (BSM), rear cross-traffic alert (RCTA), and adaptive cruise control (ACC).

KEY FINDINGS

The majority of drivers generally have favorable impressions of the technologies on their vehicles. For example:

- At least two in three owners of vehicles with each respective technology reported that they trusted it.
- More than three in four reported that they found each respective technology useful.
- At least seven in ten owners indicated they would want each respective technology on their next car and that they would recommend it to others.

However, many respondents demonstrated lack of awareness of the key limitations of the technologies. For example:

- Only 21% of owners of vehicles with blind spot monitoring systems correctly identified inability to detect vehicles passing at very high speeds as a limitation of the system; the remainder expressed various other misconceptions about its function or reported that they were unsure of the system's limitations.
- 33% of owners of vehicles with automatic emergency braking systems did not realize that the system relied on cameras or sensors that could be blocked by dirt, ice, or snow.

The data also provided some suggestive evidence of some potentially unsafe behavioral adaption in response to the technologies. For example:

- 29% of respondents reported at least occasionally feeling comfortable engaging in other activities while driving with adaptive cruise control.
- 30% of owners of vehicles with blind spot monitoring systems reported at least sometimes relying on the system to the point of changing lanes without visually checking their blind spot.
- 25% of owners of vehicles with rear cross-traffic alert (RCTA) systems reported at least sometimes backing up without looking over their shoulder.

These and many other findings are presented in detail in the Technical Report.

[VIEW REPORT](#)



METHODOLOGY

Researchers at the University of Iowa surveyed the registered owners of selected model year 2016 and 2017 vehicles equipped with technologies of interest.

The researchers catalogued the ADAS technologies offered as standard or optional equipment on the 194 vehicle makes and models that comprised 99% of the total US market share in 2016. Technologies available on vehicles were catalogued at the trim level by examining the websites and marketing materials of OEMs supplemented with information from automotive websites such as cargurus.com and Edmunds.com in cases in which the technology available on a particular vehicle could not be determined definitively from OEM sources alone.

A sample of 10,000 names and mailing addresses of registered owners of 94 specific vehicle trims identified as including three or more technologies of interest as standard equipment were purchased from IHS Automotive, which compiles a list of registered owners of vehicles in most US states. Owners of vehicles with low market share were slightly oversampled to increase the diversity of vehicles included in the sample. These 10,000 vehicle owners were invited by mail to participate in an online survey that included detailed questions about their experiences with, opinions about, and knowledge of the technologies on their vehicles. Owners of vehicles with more than three technologies of interest were asked questions about a randomly-selected three technologies to avoid excessive respondent burden. A total of 1,380 vehicle owners responded to the survey. After exclusion of a small number of ineligible respondents, data from 1,212 vehicle owners were analyzed. The number of responses for technology-specific questions varied across technologies from 502 to 519.

This study had several limitations that should be noted. Due to the availability of some technologies as optional equipment on some vehicles, the selection of the technologies about which respondents were asked was guided by their self-report of what technologies their vehicle included; some respondents might have reported incorrectly. The depth of analysis that was possible was limited by sample size. For example, while respondents included more than 300 owners of Toyota and Honda vehicles, the only other manufacturer with more than 100 respondents was Volvo. Thus, the comparisons that can be made across vehicle makes and models regarding the knowledge, opinions, and experiences of owners are quite limited. Respondents tended to be significantly older and wealthier than the general population of drivers. Although respondents' demographic characteristics appeared to be broadly consistent with those of the population of registered owners of vehicles included in the study, they may not be representative of all drivers who experience these technologies today or who will experience them in the future. As these technologies become available on lower-priced new vehicles and on used vehicles, and as other people besides registered owners also drive these vehicles (e.g., the owner's spouse, adult children, people who rent cars), the population of motorists exposed to these technologies will increasingly become more diverse than the population of registered owners of vehicles included in the study. It will be important for future research to investigate the experiences of segments of the driving population not well represented in the current study as the market for these technologies continues to expand.

ABOUT

Established in 1947 by AAA, the AAA Foundation for Traffic Safety is a not-for-profit, publicly funded, 501(c)(3) charitable research and educational organization. The AAA Foundation's mission is to prevent traffic deaths and injuries by conducting research into their causes and by educating the public about strategies to prevent crashes and reduce injuries when they do occur. This research is used to develop educational materials for drivers, pedestrians, bicyclists and other road users. Visit www.AAAFoundation.org for more information.

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AAA FOUNDATION FOR
TRAFFIC SAFETY
607 14th Street, NW, Suite 201
Washington, DC 20005
202-638-5944

