**MEMO**

TO:              Interested Parties
FROM:         Alliance for Automotive Innovation
DATE:         June 7, 2022
RE:              Dig Deeper: NHTSA's Standing General Order on Crash Data

The National Highway Traffic Safety Administration (NHSTA) is expected to release data it began collecting under a June 2021 Standing General Order (and under the August 2021 modified Standing General Order) that requires manufacturers and vehicle operators of SAE Level 2 Advanced Driver Assistance Systems (L2 ADAS) and Automated Driving Systems (ADS) to report crashes, fatalities and property damage involving those vehicles.

**L2 ADAS is a combination of adaptive cruise control and lane centering systems that assists a human driver in the driving task, while ADS takes over the driving task from the human driver when being operated in an automated mode.**

U.S roadway fatalities have increased in recent years. The Department of Transportation estimates the number of motor vehicle crash fatalities from January to September 2021 was 12 percent higher than the same period in 2020. Experts cite an increase in speeding, distracted driving and not wearing a seat belt as contributing factors.

As Transportation Secretary Pete Buttigieg said: "People make mistakes, but human mistakes don't always have to be lethal. In a well-designed system, safety measures make sure that human fallibility does not lead to human fatalities."

That's exactly right.

**L2 ADAS and ADS technologies, like other safety innovations, have the potential to help reduce crashes, injuries and injury severity.**

We strongly support the goal of increased transparency and awareness of the safety performance of these systems based on real-world data. That said, it is also critically important the data is released in a way that allows NHTSA and the public to accurately assess the safety performance of these systems.

Unfortunately, the incident data NHTSA is currently collecting under the general order is *not sufficient on its own* to fully evaluate the relative safety of L2 ADAS or ADS.

Appropriate context is needed about these crashes being reported in order to fully quantify the benefits or risks of Level 2 ADAS or ADS technology, particularly when comparing these crashes to those involving conventionally driven vehicles.

Whatever number of incidents NHTSA may eventually report, it would be a mistake to extrapolate or make broad generalizations about L2 ADAS or ADS technology without more context. For example, although crashes of ADS have been reported, it is important to note that there are very few commercially available ADS on the road today in the U.S. (and none are available for individual purchase).

In other words, nearly every ADS crash reported has been a test vehicle operated by the developer. During the design process, developers carefully work to ascertain "worst case" scenarios, and how to adjust the vehicle technology to avoid such situations.

These designs are modified to reflect real world encounters during the vehicle's development. This process helps ensure these "worst cases" will be appropriately managed once these vehicles reach full scale deployment in the market. Because of this iterative process, it may be misleading to compare the incident rates of ADS equipped test vehicles to conventionally driven vehicles that have been commercially deployed and on the road for decades.

## FAQs

**NHTSA has been collecting crash data about incidents involving SAE Level 2 Advanced Driver Assistance Systems (L2 ADAS). What is that?**
ADAS includes lane centering technology, adaptive cruise control and other sensor reliant safety features widely available in today's fleet that *support* the human behind the wheel.

These technologies assist the human driver. L2 ADAS combines lane centering and adaptive cruise control to assist the human driver in longitudinal and lateral control of the vehicle, but crucially requires the human driver's attention *at all times*.

**Are L2 ADAS equipped vehicles also considered an autonomous vehicle?**
No, although the terms are regularly conflated (which is part of what causes confusion), they are not the same. L2 ADAS equipped vehicles require an attentive human driver at all times. You might own a vehicle with these features; they're available today.

**OK, so then what is ADS? Does *that* make a car an autonomous vehicle?**
Yes. An ADS is the underlying technology that makes a vehicle automated. Unlike an L2 ADAS equipped vehicle, ADS equipped vehicles do not require or expect a human driver to manage the driving task and all its functions when the system is engaged. In this case, when the system is engaged, the ADS *is* the driver.

**Lots of acronyms here?!**
L2 ADAS = SAE Level 2 Advanced Driver Assistance System. SAE levels of automation range from 0 (no driver support) to Level 5 (fully automated). L2 ADAS supplements a human behind the wheel but must be monitored by the human driver at all times.

ADS = Automated Driving System. This represents any of the SAE Levels 3 through 5. Level 3 is conditional automation, where a human driver must stand by to take over but otherwise does not need to pay attention to the driving task, when the system is engaged. Level 5 is fully automated, which can be operated without a human driver. [1]

**I still don't get it. What does this look like in the real world?**
Imagine you're driving down a highway using both lane keeping assist and adaptive cruise control (L2 ADAS). An emergency vehicle with its lights and siren approaches from behind. The L2 ADAS may not recognize such a situation or react to pull over to the shoulder. A person in the driver's seat needs to do this.

An ADS system, on the other hand, is designed to recognize the emergency vehicle and take appropriate actions. A human riding in the vehicle may not need to do anything.

**What does this have to do with NHTSA's data collection order?**
L2 ADAS and ADS are fundamentally different technologies and the safety performance of these two technologies is likewise fundamentally different. Getting this data out in a clear way that shows the whole picture matters.

There is already quite a bit of confusion due to the conflation of the types of technologies in the marketplace. If NHTSA only aggregates L2 ADAS and ADS crash data, it tells us very little about the relative safety of either technology. For example, if the data isn't reported with sufficient detail and context, it muddies the water with unnecessary confusion, creates misperceptions about what is "safe," and could erode consumer confidence.

**Sounds like you're worried data will show L2 ADAS and ADS technology isn't inherently safe?**
We know these technologies can help save lives and improve safety. We want NHTSA to ensure the reported data includes crucial context necessary to accurately reflect these important safety benefits, as well as the differences between proprietary systems that are either on the road or are being developed. For example, how many vehicles were operating on U.S. roads with this technology? How many miles were driven by vehicles with these systems during the reporting period? How did NHTSA work to normalize differences in reporting by manufacturers or suppliers?

If NHTSA only reports the gross number of incidents, there won't be enough information to evaluate and contextualize the safety of these technologies. For example: five crashes out of one million miles driven is substantially different than five crashes out of 100 miles driven.

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[1] ADS functionality is further broken out in Level 3, 4 and 5 classifications. ADS vehicles are not yet widely deployed in the U.S. and undergoing rigorous testing.

Also relevant? How many vehicles *without* L2 ADAS or ADS technologies were involved in crash incidents during the same time period? If this kind of context is missing, the data won't paint a complete or accurate picture of the safety of these vehicles.

Key points to keep in mind:

- Context and words matter. The integrity of the data must be maintained.

- ADAS and ADS are different. One is not "better" than the other.

- NHTSA should make this clear with data-driven analysis and context.

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