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The Honorable James Clayton Owens
Acting Administrator
National Highway Traffic Safety Administration (NHTSA)
1200 New Jersey Avenue SE, West Building
Washington, D.C. 20590-0001

28-May-2020

Subject: reply to NHTSA's NPRM on Occupant Protection for Automated Driving Systems (NHTSA-2020-0014)

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Dear Mr. Owens,

IEE welcomes the opportunity to provide commentary related to the questions put forward by NHTSA in the Notice of Proposed Rulemaking (NPRM) covering FMVSS amendment proposals to include occupant protection requirements for Automated Driving Systems (ADS).

IEE is a global supplier of automotive sensing systems covering a large range of application areas such as occupant presence detection for seat belt reminder systems, occupant classification for advanced airbag systems, child presence detection sensors to help prevent in-vehicle heat stroke, and hands on/off detection sensors supporting assisted and automated driving.

On March 30, 2020, NHTSA published an NPRM on occupant protection requirements for Automated Driving Systems in Docket No. NHTSA-2020-0014. This NPRM included a variety of questions asking for feedback related to specific points.

Please find below IEE's response to those topics and questions where we feel we are in a position to comment.

Amendments to FMVSS 208 – advanced air bags

IEE supports the agency proposal to treat any seat that does not have immediate access to traditional manual controls as a passenger seat. Hence the existing front passenger seat requirements regarding crashworthiness and FMVSS 208 on advanced air bags should be mirrored to any front seat without such manual controls, including inboard seating configurations.

Any front row seat of an ADS that would be available for child occupants shall meet the advanced air bag protection requirements to ensure that children receive appropriate protection.

Hence IEE supports the proposal to add the modifier “any front outboard” to the word ‘‘passenger’’ in the relevant sections of S19 through S24, S27 and S28. We would suggest to even modify the wording to “any front outboard or any front inboard passenger” to cover a possible inboard seating configuration.

Motion suppression feature

For dual-mode vehicles, NHTSA proposes a motion suppression feature if a child is detected in the driver’s seat while the vehicle is in an operational state that does not require a driver (AD-mode). In such a dual-mode vehicle, the driver air bag would be required to meet the driver’s seat occupant protection requirements. We understand that NHTSA’s key aim is to prevent the potential deployment of a driver-specified air bag onto a child if such a vehicle would be involved in a crash. This would be an unsafe condition, particularly for smaller children, because the driver’s seating position is not required to have protection for children from the dangers of air bag deployment in the current advanced air bag sections of FMVSS 208.

The motion suppression test proposed in S19.5, applying the test procedures specified by S20.1 through S20.2 using a 12-month-old CRABI dummy, would ensure that the most-at-risk population is safe from a potential driver air bag deployment, as it would prevent that such a dual-mode vehicle could start a journey, and consequently, it cannot become involved in a crash. Hence IEE supports that proposal.

Amendments to FMVSS 208 – belt warning systems

In addition to the above comments, IEE would like to raise a point not addressed in the NPRM: we would encourage NHTSA to consider an adaptation of paragraph S7.3 of FMVSS 208 in view of automated driving vehicles. The paragraph S7.3[1] currently only requires the installation of a seat belt reminder system for the driver seat. Hence S7.3 would not be applicable at all to an ADS as there is no “driver seat”. The same would be valid for a dual-mode vehicle in AD-mode.

In a number of US States, it is the driver’s responsibility to ensure that other vehicle occupants are wearing their seat belt. In ADS vehicles without traditional manual controls, one cannot assume that somebody else takes the driver’s role to cover this responsibility. Hence, we urge NHTSA to consider an extension of S7.3 to all passenger seating positions of ADS and dual-mode vehicles. An ADS or AD-mode vehicle should be capable to check at least if adult occupants (5% female or larger) are belted. If not, an appropriate audio-visual seat belt reminder warning should be triggered. This would help to avoid that ADS vehicles may circulate with an increased number of unbelted occupants compared to conventional vehicles, which would have detrimental effects to overall road safety. Research shows that passengers of rideshare

[1] S7.3 (a) A seat belt assembly provided at the driver’s seating position shall be equipped with a warning system..

vehicles wear their seat belt less often than when using their personal car. With the step towards a driverless mode, one can easily expect that belt usage would decrease even further. Advanced Seat Belt Reminder (SBR) Systems can trigger audio-visual warnings for unbelted occupants until the seat belt is fastened or the warning duration time threshold is reached. For “non-driver” seating positions the function can be easily enabled by occupant presence sensing. Fitted to all seats, advanced SBRs would be an easy approach to tackle the risk of lower belt wearing rates for ADS passengers.

For front row seats of vehicles without manual controls, the occupant sensing requirements for such a belt warning system would already be covered for a large majority of vehicles by the duplication of the advanced air bag requirements of FMVSS 208 to any front seating position. For dual-mode vehicles in AD-mode, the occupant sensing system used for the motion suppression feature could be used to detect the presence of an adult, and, if applicable, trigger the seat belt warning.

For the rear seats, advanced seat belt reminder systems are nowadays increasingly available. Euro NCAP has started to incentivise such systems in 2018. In 2019 already 46% of the Euro NCAP assessed vehicle models were equipped with rear seat occupant detection, enabling an advanced seat belt reminder function with audio-visual warnings. The detection requirement of Euro NCAP covers adult occupants. So, it has been proven that the implementation of such systems is easily feasible, and they are even available on mass volume and cost sensitive conventional vehicle models. Hence there is no technical or feasibility obstacle against mandating the fitment of such systems to technologically much more advanced ADS vehicles.

IEE fully supports NHTSA’s efforts to ensure that future ADS and dual-mode vehicles meet crashworthiness requirements and welcomes the plans to amend FMVSSs to enable their applicability to such vehicles.

Should you have any further questions regarding this document, please feel free to contact Mr. Thierry Mousel, Marketing Manager and Global Regulatory Strategist, by phone at +352 2454 2446.

Sincerely,

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