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Coalition for Safe Autonomous Vehicles and Electrification

June 14, 2024

Ms. Sophie Shulman
Deputy Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

RE: Federal Motor Vehicle Safety Standards; FMVSS No. 305a Electric-Powered Vehicles: Electric Powertrain Integrity Global Technical Regulation No. 20, Incorporation by Reference.

Dear Deputy Administrator Shulman,

The Coalition for Safe Autonomous Vehicles and Electrification (SAVE Coalition) submits these comments in response to the April 15, 2024, Federal Register Notice of Proposed Rulemaking (NPRM) on FMVSS 305a ("Electric-Powered Vehicles: Electric Powertrain Integrity Global Technical Regulation No. 20, Incorporation by Reference").

The SAVE Coalition was founded by a group of companies building all-electric, purpose-built, fully autonomous vehicles (AV-EVs) to improve road safety and sustainability. The vision: an autonomous and electric future that transforms mobility for the better—for everyone. With the advent of autonomous vehicle technology, we can move beyond the traditional driver-centric design and instead reimagine vehicle design purpose-built for specific use cases. Removing the human driver allows for the development of new safety innovations in vehicle design, enhancing safety for the passengers and cargo moved as well as other road users.

Our members currently own their vehicle fleets and are responsible for daily operations, including fleet management, fleet routing and optimization, teleoperations, and customer support. They are operating fleets throughout the United States, including in California, Nevada, and Texas, with plans to add more vehicles and locations over time.

Introduction of this technology will yield substantial safety, environmental, accessibility, and equity benefits to the motoring public, as well as help keep the United States in a global technology leadership position. AV-EVs promote safer streets by reducing collisions caused by human error. They promote sustainability through shared zero-emission fleets that will reduce congestion and pollution in our cities. And AV-Evs hold the promise to increase equity and accessibility in transportation by providing affordable and accessible mobility options for those who are unable to drive.

As manufacturers of all-electric, purpose-built, fully autonomous vehicles, our members have a unique perspective on the proposed warning requirements for REESS ("rechargeable electrical

energy storage system") related risks as they relate to autonomous vehicles ("AVs") without manual driving controls.

We commend the agency for considering and prescribing appropriate standards for autonomous vehicles in this rulemaking. The warnings proposed in the NPRM for REESS related risks are reasonable to include, and appropriately directed toward either the driver or vehicle occupants in the case of autonomous vehicles without manual driving controls. The thermal event warning prescribed in S13.2 however does not include the clause requiring notification of occupants in AVs without manual driving controls. We believe this was an unintentional omission and should be aligned with the proposed warning requirements in S6.4 and S11.3. We also recommend extending this requirement to all rows of occupants as there is no assurance that occupants will ride in the front row of an AV, or that front row occupants will communicate with occupants in other rows.

We also propose corrections for two clerical errors relating to S8.1 fire safety and S12.5 external short circuit test.

Warning requirements for autonomous vehicles

The proposed FMVSS 305a requires a warning be given to occupants of the vehicles in three circumstances:

- S6.4 - Electrical isolation monitoring
- S11.3 - Vehicle controls managing REESS safe operations
- S13.2 - Thermal event warning

In S6.4 and S11.3, the standard addresses how a warning is to be provided for autonomous vehicles without manual driving controls by including the clause "For a vehicle with autonomous driving systems and without manually operated driving controls, the visual warning must be provided to all the front row occupants." S13.2 does not include this clause and only requires the warning be provided to the driver. Occupants of an autonomous vehicle without manually operated driving controls would also benefit from a warning regarding a thermal event, so we propose the clause appearing in S6.4 and S11.3 should also be included in S13.2.

Furthermore, the warning for occupants of AVs should not be limited to front row occupants. Unlike human driven vehicles, there is no inherent reason any occupant must ride in the front row of an AV without manual controls. Riders may ride in the rear of the vehicle and leave the front row empty, or in vehicles which allow ride sharing, front and other row occupants may not be part of the same group, and may not communicate the presence of the warning to others. In both cases, the rear row occupants may not receive the relevant warnings in a timely manner. Given the practicality of displaying a visual warning at an inboard designated seating position, and the high likelihood that an inboard occupant is traveling with an adjacent outboard occupant who could communicate the risk, we propose that the visual warning be required for all outboard seating positions.

Finally, because the term “autonomous driving system” is not yet defined in the FMVSS, we recommend removing it from these proposed requirements, and simply address vehicles not having manually operated driving controls. “Manually operated driving controls” is defined in 49 CFR § 571.3. Our recommended revisions are provided below.

> S6.4 *Electrical isolation monitoring.* DC high voltage sources of vehicles with a fuel cell system shall be monitored by an electrical isolation monitoring system that displays a warning for loss of isolation when tested according to S7.4. The system must monitor its own readiness and the visual warning display must be provided to the driver. For a vehicle ~~with autonomous driving systems and~~ without manually operated driving controls, the visual warning must be provided to ~~all the front row occupants~~ occupants in all outboard designated seating positions.
>
> S11.3 The vehicle manufacturer must make available to the agency, upon request, documentation in accordance with S12.8 that demonstrates the activation of a visual warning, when the vehicle is in active driving possible mode to indicate operational failure of the vehicle controls that manage the safe operation of the REESS. The warning system shall monitor its own readiness and the visual warning must be provided to the driver. For a vehicle ~~with autonomous driving systems and~~ without manually operated driving controls, the visual warning must be provided to ~~all the front row occupants~~ occupants in all outboard designated seating positions.
>
> S13.2 *Warning in the case of thermal event in REESS.* The vehicle shall provide a warning to the driver of a thermal event in the REESS. The warning shall activate within three minutes of activating a heater within the REESS when tested in accordance with S13.3. The warning shall consist of auditory and visual signals that remain active for at least 5 minutes. The thermal event warning system must monitor its own readiness and the warning must be provided to the driver. For a vehicle without manually operated driving controls, the warning must be provided to occupants in all outboard designated seating positions.

Clerical corrections

S8.1 Fire safety

The proposed requirement regarding fire safety in S8.1 specifies there shall be no evidence of fire or explosion in any part of the vehicle. However the preamble and referenced requirement from GTR 20 indicate this requirement is intended to assess REESS fire and explosion, and not fires originating from other vehicle systems. FMVSS 208, 214, 301, and 303 do not include requirements prohibiting evidence of fire or explosion from any vehicle system after completion of a crash test. If NHTSA’s intent is to regulate fire risks from all vehicle systems, that requirement should be applied more generally in a regulation covering all vehicles regardless of powertrain. For the purposes of assessing electric vehicle safety, and to align with GTR 20 and

the stated intent in the preamble, this requirement should be clarified to be specific to REESS related fires, even if only assessed at the vehicle level as follows:

> S8.1 *Fire safety.* Starting from the time of impact and continuing until one hour after the completion of the sequence of tests specified in S9 of this standard, there shall be no evidence of fire or explosion ~~in any part of the vehicle~~ of the REESS. The assessment of fire or explosion is verified by visual inspection without disassembly of the REESS or vehicle.

S12.5 External short circuit test

The text of S12.5 erroneously references overcharge protection and should be amended as follows:

> S12.5 *External Short circuit test.* The short circuit test is conducted at ambient conditions with the vehicle REESS initially set between 90 to 95 percent SOC. The following steps are conducted to evaluate the vehicle's ~~overcharge~~ external short circuit protection controls:

The SAVE Coalition appreciates NHTSA's efforts and welcomes further dialog that can aid the agency in supporting deployment of AV-EVs to realize the twin goals of improving public health and reducing roadway fatalities.

Respectfully submitted,

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