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National Highway Traffic Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Subject: Public Comment on NHTSA Proposed Rule - Federal Motor Vehicle Safety Standard: No. 305a; Electric-Powered Vehicles: Electric Powertrain Integrity, Global Technical Regulation No. 20; Docket ID No. NHTSA-2024-0012.

We appreciate the opportunity to provide comments to NHTSA on the proposed rule regarding the development of its Federal Motor Vehicle Safety Standard (FMVSS) No. 305a. Since our founding in 1894, UL Solutions has emphasized safety-based science and scientific integrity, and we value NHTSA's commitment to advancing electric vehicle (EV) safety.

A global safety science leader, UL Solutions helps companies demonstrate safety, enhance sustainability, strengthen security, deliver quality, manage risk and achieve regulatory compliance. Our third-party, objective testing, inspection and certification services confirm whether products meet standards for safety, security and sustainability. We provide comprehensive, end-to-end EV battery testing services that help mitigate safety and compliance risks, improve dependability and drive confidence in the value of products.

UL Solutions performs its safety science in accordance with the words of our founder, William Henry Merrill Jr.: "Know by test and state the facts." These words live on as a core organizational guiding principle and align with NHTSA's mission. UL Solutions is proposing more stringent requirements as an alternative to what's proposed by NHTSA, as follows:

The FMVSS 305a document suggests that battery testing should be done inside the vehicle: *"Based on the results of NHTSA's research, the agency proposes to conduct full vehicle-level tests using a breakout harness connected to a battery tester/cycler 49 to evaluate vehicle controls for safe REESS operation, rather than conducting the tests on the REESS as a separate component. NHTSA is proposing vehicle-level testing because evaluating REESS safe operation at the vehicle level would evaluate the entire vehicle system and the associated vehicle controls, whereas conducting the tests at the equipment level would not evaluate all the relevant vehicle controls or any interaction or interference between vehicle controls."*

In many cases, component REESS incorporate robust safety controls through the integration of the Battery Management System (BMS) and do not rely on the vehicle controls for protection of the REESS. Since FMVSS No. 305a would contain all the requirements of FMVSS No. 305, including complete vehicle crash tests for light vehicles, we propose to allow an option to follow ECE R100 and allow independent testing of the battery if the battery can demonstrate

compliance to the requirements without the benefit of the vehicle support systems. This proposal would align with the existing interpretation of Global Technical Regulation (GTR) No. 20 and will support the efforts of harmonization by NHTSA.

Note that NHTSA's proposal does not align with GTR No. 20 and may present logistical and safety challenges to testing facilities looking to comply with the proposed requirements. Testing the battery outside of the vehicle can help facilitate battery manufacturers to address potential safety issues at the component level before vehicle integration, avoid the high cost of vehicle samples and vehicle testing costs, and mitigate the risk of vehicle equipment lost due to fires during testing. For these reasons and others, ECE R100 allows manufacturers to test the battery (REESS) outside the vehicle before installation if the battery can be demonstrated to protect itself without the benefit of the vehicle. We acknowledge there are tests where it may be important that the REESS be tested in the vehicle to comply with the requirements of the proposal, such as the mechanical testing. Therefore, we propose that the regulation include an option to allow testing the batteries outside of the vehicle, which is presently being done successfully with manufacturers in Europe. This regulation will bring awareness to auto manufacturers that test with a Nationally Recognized Testing Laboratory (NRTL) under the U.S. Occupational Health and Safety Agency (OSHA).

Further, the approved U.S. national standard UL 2580, the Standard for Batteries for Use in Electric Vehicles, addresses EV battery safety and abuse of all types of EV batteries, for all classes of vehicles, including heavy duty. UL 2580 includes almost all of the tests listed in ECE R100 or GTR 20 for the component batteries and goes a step further to also require constructional compliance such as material and component suitability, battery management system reliability, and single cell thermal runaway resistance. Given the robustness of the requirements in UL 2580, we propose the adoption of the UL 2580 listing as an alternative to the testing methods and requirements for component batteries.

Thank you again for the opportunity to provide comments. UL Solutions looks forward to serving as a resource for NHTSA as it advances EV battery safety. If you have any questions, please contact Melissa Klein, Federal and State Government Affairs lead, at Melissa.Klein@UL.com or 202.704.0607.

Sincerely,

/s

Derek Greenauer
Director, Global Government Affairs – Americas Region
UL Solutions